

***Integrated Environment, Safety, and Health
Management System Description
for the Tank Farm Contractor***

April, 2000

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1 Introduction

1.1 Background

The U.S. Department of Energy (DOE) Integrated Safety Management System (ISMS) is structured to integrate environment, safety, and health (ES&H) into work planning and execution. Integration is accomplished at the company, facility, and activity levels. Total safety integration enables the assigned missions to be efficiently and effectively accomplished while protecting the workers, the public, and the environment and is embodied in the overall ISMS objective to “Do Work Safely.”

In October 1995, the Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 95-2 regarding Nuclear Facility Safety Management. The DOE’s acceptance of Recommendation 95-2 resulted in the development and implementation of the Integrated Safety Management Implementation Plan for Board Recommendation 95-2, dated April 1996.

Since publication of the DOE’s implementation plan, DOE has published the following Code of Federal Regulations (CFRs) Department of Energy Acquisition Regulation (DEAR) clauses, and associated DOE Policies and Guide, which contain the requirements to develop, implement, and sustain a safety management system for DOE and its contractors.

Title	Publication Date
DOE P 450.4, <i>Safety Management System Policy</i>	October 1996
48 CFR DEAR 970.5204-2, <i>Integration of Environment, Safety, and Health into Work Planning and Execution</i> (CHG Contract DE-AC06-99RL14047, Clause I.90, dated October 1999)	June 1997
48 CFR DEAR 970.5204-78, <i>Laws, Regulations, and DOE Directives</i> (CHG Contract DE-AC06-99RL14047, Clause I.114, dated October 1999)	June 1997
DOE P 450.5, <i>Line Environment, Safety and Health Oversight</i>	June 1997
DOE P 411.1, <i>Safety Management Functions, Responsibilities, and Authorities Policy</i> (Not applicable for Contractors)	January 1997
DOE P 450.6, <i>Secretarial Policy Statement, Environment, Safety and Health</i>	April 1998
48 CFR DEAR 970.5204-86, <i>Conditional Payment of Fee, Profit, Or Incentives</i> (CHG Contract DE-AC06-99RL14047, Clause I.120, dated October 1999)	April 1999
DOE G 450-4-1A, <i>Integrated Safety Management System Guide</i>	May 1999

Table 1. Integrated Safety Management System Structure Definition

The contract between CH2M HILL Hanford Group, Inc. (CHG) and the DOE, Office of River Protection (DOE-ORP) (Contract DE-AC06-99RL14047) requires CHG to accomplish work in a manner that achieves protection, health and safety of the workers, public, and the environment, high levels of quality, and compliance with requirements. CHG is required to:

1. Take necessary actions to minimize serious injuries, illnesses, and/or fatalities; prevent radiological or chemical exposures to workers; and prevent environmental releases in excess of established limits.
2. Establish clear environmental, safety, health, and quality plans and priorities; and proactively manage these activities.

3. Carry out all activities in a manner that complies with human health, safety, environmental, and quality regulations while minimizing generation of wastes and releases or emissions to the air, soil, or groundwater.
4. Empower workers through the use of committees, employee involvement, and the tenants of the DOE – Voluntary Protection Program (VPP).
5. Engender a "Safety Conscious Work Environment" in which safety issues are promptly identified and effectively resolved.

To ensure that CHG accomplishes these requirements, specific provisions and contract clauses related to ES&H activities are included in Contract DE-AC06-99RL14047 as discussed previously and throughout the remainder of this document. By including key provisions and clauses in the contract, DOE-ORP has a mechanism to define the mission, direct implementation of the ISMS, institutionalize safety for activities performed within the defined scope of work, and achieve integration of contractor internal and external activities. These clauses include, but are not limited, to: Tri-Party Agreement (TPA), Environmental Responsibilities, Security, Emergency Situations, Work Shutdown Authorization, Quality Assurance Requirements, Clean Air and Clean Water, Resource, Conservation and Recovery Act (RCRA), Requirements, Hazardous Material Identification, Pollution Prevention, Toxic Chemical Release Reporting, Stop-Work Orders, Nuclear Hazards, and *Integration of ES&H into Work Planning and Execution* (48 CFR DEAR 970.5204-2, Contract Clause I.90). In support of our nation's cleanup efforts, CHG has developed and implemented an effective ISMS as described in this ISMS Description.

1.2 Purpose

This document describes the ISMS used to ensure that safety and quality is integrated into management and work practices at various levels for work performed under Contract DE-AC06-99RL14047 between CHG and DOE-ORP. For purposes of this document, the term "safety" includes environmental, safety, and health management including pollution prevention, waste minimization, safeguards, and security. This ISMS Description fulfills the intent of DEAR Clauses 970.5204-2, *Integration of Environment, Safety, and Health into Work Planning and Execution*, 970.5204-78, *Laws, Regulations, and DOE Directives*, 970.5204-86, *Conditional Payment of Fee, Profit, Or Incentives*, and DOE Policies P 450.4, *Safety Management System Policy*, P 450.5, *Line Environment, Safety and Health Oversight*, and P 450.6, *Secretarial Policy Statement, Environment, Safety and Health*. The Tank Farm Contractor (TFC) ISMS demonstrates protection of the worker, public, and environmental safety for work supporting DOE-ORP and the River Protection Project (RPP) mission.

1.3 Scope

The scope of this document includes the systems, programs, and implementing mechanisms supporting the ISMS, with reference to lower tier documents containing the detailed integration of the systems, programs, and implementing mechanisms. The ISMS described herein applies to work performed by CHG as the TFC, under Contract DE-AC06-99RL14047, and to work subcontracted by CHG. A subcontractor may be required by contract to have and document its own safety management system that is compatible with the TFC ISMS, if the subcontracted work is judged by DOE and CHG to be sufficiently complex and/or hazardous. As applied by CHG, quality assurance is also an element of assuring safety work is performed safely by CHG as the TFC.

2 ISMS Overview

The structure of an ISMS contains seven guiding principles and five core functions. The guiding principles and core functions are interactive and iterative among elements and business levels (i.e., company level, facility level, activity level) throughout CHG's RPP Life Cycle phases. This structure is based on the guidance contained in DOE P 450.4, *Safety Management System Policy*, DOE P 450.6, *Secretarial Policy Statement, Environment, Safety and, Health*, 48 CFR DEAR 970.5204-2, *Integration of Environment, Safety, and Health into Work Planning and Execution* (CHG Contract DE-AC06-99RL14047, Clause I.90, dated October 1999), and DOE G 450-4-1A, *Integrated Safety Management System Guide*.

Objective of Integrated Safety Management

The Department and Contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment. (DOE P 450.4)

2.1 ISMS Business Levels

The three business levels associated with the TFC's ISMS are:

The Company Level

At the company level, the contract provides the mechanism for the DOE-ORP to manage the TFC. The contract establishes the work scope, specifications, standards, and requirements for the work to be performed. The contract establishes the mechanisms for DOE-ORP to provide technical direction, approve the Authorization Agreement (AA) (CHG-5980) that establishes the overall authorization envelope (AE) for the work scope, and manage the project baseline (see Section 5.7.2, *Operations Authorization*, for discussion on the TFC's AA). Managing the project baseline includes planning, budgeting, control, evaluation, work authorization, and other project management activities. At the company level, the TFC establishes programs, policies, and plans for work accomplishment; manages work interfaces; and directs work. Work includes design and construction of facilities and equipment, operations and maintenance, evaluation of performance, and reporting. Overall leadership is provided by the President, Executive Vice President, Vice Presidents, and Directors. DOE-ORP establishes the company level scope of work on an annual basis. Priorities are established between DOE-ORP and the TFC. Budgets are developed using estimates provided by the line organizations. These budgets include the ES&H resources required to execute the work safely in support of maintaining the infrastructure of the facilities. After DOE approves the program requirements, project work requirements flow down to the company level for planning, scheduling, and work execution.



The Facility Level

At the facility level, work is managed at the functional or project level and work plans are prepared. Authorized work established at the company level is implemented at the facility level. For example, at nuclear facilities, authorized work activities are bounded by the Safety Analysis Report (SAR) and Technical Safety Requirements (TSRs) and implemented through procedures and training. These documents, along with environmental permits, Standards/Requirements Identification Documents (S/RIDs), and other safety documents, form the AE for the facility. Work release is controlled to ensure work and operations are performed within the AE.

The Activity Level

The activity level includes authorized work, including design, engineering, maintenance, operations, testing, and assessment. Work is performed by field work supervisors (FWS), leads, and workers. Work scope is scheduled, working documentation is prepared (e.g., work packages, ECNs, USQ screenings, etc.), and work is performed by FWS, leads, and workers.

The flow down of authority through the business levels and more details of the Activity Level are discussed in Section 5.2, *Guiding Principle 2 – Clear Roles and Responsibilities*.

2.2 ISMS Guiding Principles

The seven guiding principles are attributes applied to and achieved through execution of the TFC's mechanisms (e.g., processes and procedures) that implement the five core functions.

Guiding Principles 1 through 3 are applied to each activity within each Core Function at each business level. Guiding Principles 4 through 7 align with specific Core Functions as illustrated in Table 2. The seven guiding principles are defined in DOE P 450.4 as:

1. ***Line Management Responsibility for Safety.*** *Line management is directly responsible for the protection of the workers, the public, and the environment. As a complement to the line management, the Department's Office of Environment, Safety and Health provides safety policy, enforcement, and independent oversight functions.*
2. ***Clear Roles and Responsibilities.*** *Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors.*
3. ***Competence Commensurate with Responsibilities.*** *Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.*
4. ***Balanced Priorities.*** *Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting the workers, the public, and the environment shall be a priority whenever activities are planned and performed.*
5. ***Identification of Safety Standards and Requirements.*** *Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established, which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.*
6. ***Hazard Controls Tailored to Work Being Performed.*** *Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and the associated hazards.*
7. ***Operations Authorization.*** *The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.*

2.3 ISMS Core Functions

The following five core functions, as defined in DOE P 450.4 and illustrated in Figure 1, provide the overall framework and structure of an ISMS.

1. **Define the Scope of Work.** Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
2. **Analyze the Hazards.** Hazards associated with the work are identified, analyzed and categorized.
3. **Develop and Implement Hazard Controls.** Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.
4. **Perform Work within Controls.** Readiness is confirmed and work is performed safely.
5. **Provide Feedback and Continuous Improvement.** Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur.

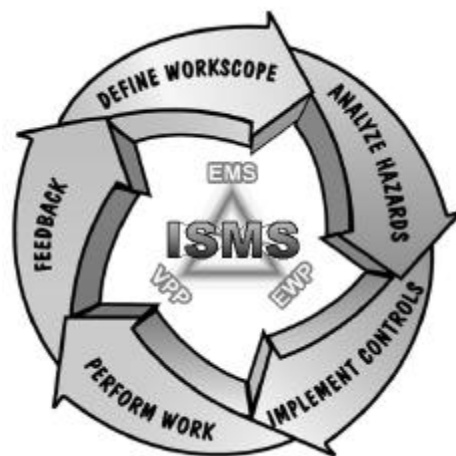


Figure 1 Overall Framework and Structure of an ISMS.

2.4 Integration of Other Safety Initiatives

Prior to the establishment of the ISMS structure, numerous safety initiatives were developed by a variety of entities (e.g., VPP, Enhanced Work Planning [EWP], International Standards Organization for Environmental Management System [ISO 14001]). These initiatives complement the ISMS, and elements of the initiatives have been incorporated into CHG's comprehensive program. These safety initiatives minimize safety impacts, proactively ensure compliance, and effectively respond to worker needs. Open and effective communication between management, workers, and support professionals is essential to achieve human/environment protection and regulatory compliance.

The DOE-VPP promotes safety and health excellence through cooperative efforts among labor, management, and government at DOE contractor sites. Table 2 illustrates the correlation between ISMS and the DOE-VPP structure. CHG has established a goal of achieving STAR recognition under the DOE-VPP. STAR status is awarded to outstanding contractor safety and health programs that have successfully implemented the program elements. The basic program elements include management leadership and commitment, employee involvement, work site analysis, hazard prevention and control, and safety and health training (HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*).

ISMS Guiding Principles	ISMS Core Functions	DOE-VPP Elements
1. Line Management Responsibility	All five Core Functions	1. Management Leadership
2. Clear Roles and Responsibilities		2. Employee Involvement
3. Competence per Responsibilities		5. Safety and Health Training
4. Balanced Priorities	1. Define Scope of Work	
	2. Analyze Hazards	3. Worksite Analysis
5. Identification of Safety Standards	3. Develop and Implement Controls	4. Hazard Prevention and Control
6. Tailor Hazard Controls to Work		
7. Operations Authorization	4. Perform Work	
	5. Feedback and Improvement	All five elements

Table 2. Alignment of ISMS Guiding Principles to Core Functions Supported by the Five VPP Elements.

EWP is a process that evaluates and improves the way work is identified, planned, approved, controlled, and executed. The key elements of EWP include line management ownership; a graded approach to work management based on risk and complexity, worker involvement, and integrated work-planning teams. EWP is integrated into the CHG work control process contained in HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*. As a part of this process, workers are directly involved in preparation of the Automated Job Hazards Analysis (AJHA), work planning, work execution, and post-job reviews when performed.

ISO 14001 provides an Environmental Management System (EMS) to establish environmental management standards. Key elements of the EMS include a written program (objectives, legal requirements, and other applicable requirements), operational structure and responsibilities, training and competence, communications, documentation and document control, monitoring systems, non-conformance and corrective/preventive actions, and records control. CHG's Environmental Management System is defined in the *Environmental Program Description-Tank Farm Contractor* (RPP-1773).

2.5 ES&H Minimum Performance Requirements

CHG is working closely with DOE-ORP to identify and establish minimum safety performance requirements as required by 48 CFR DEAR 970.5204-86, *Conditional Payment of Fee, Profit, Or Incentives* (CHG Contract DE-AC06-99RL14047, Clause I.120). The specific minimum performance requirements, including effective date and future revisions to, are being negotiated with DOE-ORP. Once agreed to, a modification to Contract DE-AC06-99RL14047 will be processed. Annual review/update is discussed in Section 6.2, *Annual Review of ISMS documentation*.

3 River Protection Project Overview

This section provides an overview of the RPP, project integration, and the TFC outside interfaces.

3.1 River Protection Project

The DOE-ORP was established at the Hanford site in December 1998, as directed by Congress in Section 3139 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 to execute and manage the RPP. The mission of the RPP is to store, retrieve, treat, and dispose of the highly radioactive Hanford Site waste in a safe, environmentally sound, and cost-effective manner. In support of this mission, DOE-ORP has two DOE prime contractors that are responsible for executing the assigned project workscope (CHG as the Tank Farm Contractor, and British Nuclear Fuels Limited, Inc. [BNFL] as the Privatization Contractor), which is discussed later in this section.

Since 1944, highly radioactive waste from the chemical processing of irradiated reactor fuel has been stored in underground storage tanks at the Hanford Site. Approximately 204 million liters (54 million gallons) of caustic liquid, salt cake, and sludges are currently stored in 177 underground storage tanks in 18 tank farms and 1,933 cesium/strontium capsules. Combined, the tanks and capsules represent about 60 percent (by volume) of the nation's and 80 percent (by radioactivity) of the Hanford Site's radioactive waste resulting from nuclear weapons development.

Detailed DOE-ORP project definition, roles, and responsibilities are defined in DOE/ORP M 411.1-1, *Functions, Responsibilities, and Authorities Manual*. Figure 2 shows the line authority from the Secretary of Energy to the Manager of DOE-ORP to CHG.

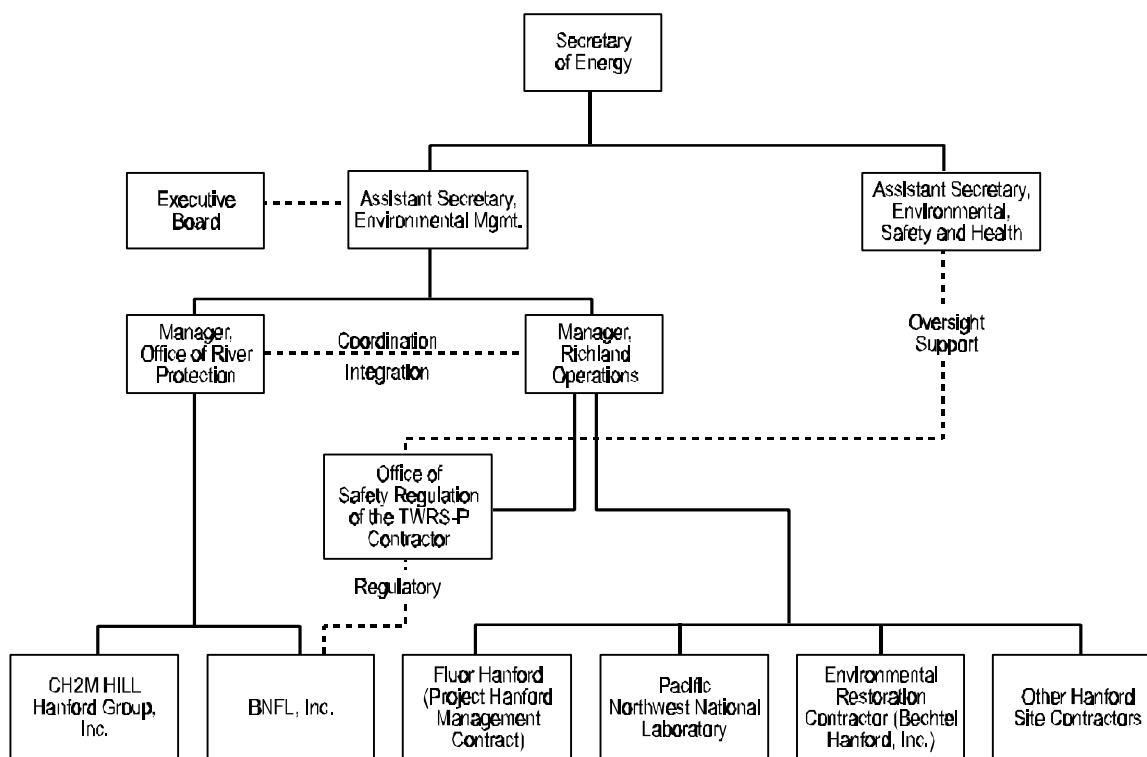


Figure 2 Organizational relationships for the Office of River Protection.

Prior to October 1999, Lockheed Martin Hanford Corporation (LMHC) was a Major Subcontractor to Fluor Daniel Hanford (Prime Contractor to DOE-RL). LMHC completed a successful ISMS Phase II Verification for the tank farm facility. Section 6.0, *Institutionalizing ISMS*, provides additional detail on the TFC ISMS implementation activities. LMHC was established as a prime contractor to DOE-ORP in October 1999. CHG assumed DOE-ORP prime contract DE-AC06-99RL14047 in December 1999, following the sale of LMHC to CH2M HILL. CHG as the TFC, is responsible for the tank waste storage, waste retrieval, interim storage of high-level immobilized waste, disposal of immobilized low-activity waste, and waste feed delivery to BNFL, for the RPP mission. The *Project Execution Plan for the Tank Farm Contractor* (RPP-6017) defines how CHG executes the contract work scope and provides guidance to managers, employees, and subcontractors on safe and efficient project delivery, including conduct of operations.

The TFC selectively adopted Fluor Daniel Hanford HNF-PROs, policies, management directives, and plans that were necessary to execute the new contract with DOE-ORP. A management directive (RPP-MD-033, *Transition of FDH Procedures, Plans, Policies, and Management Directives to RPP*) was issued to provide interim guidance on use of the adopted administrative procedures until documents are revised to recognize the new reporting relationship to DOE-ORP.

When authorized by DOE-ORP to proceed, BNFL, Inc., the Privatization Contractor, will be responsible for completing Phase 1 tank waste treatment. The Privatization Contractor scope includes designing, constructing, and operating the Waste Treatment Plant to treat tank waste and returning the treated waste to CHG for interim storage and/or disposal.

3.2 Office of River Protection Project Integration Office (PIO)

The PIO integrates the RPP activities as defined in DOE/ORP-2000-06, *River Protection Project – Project Management Plan*. The organization ensures coordination and integration of multiple contractors' work activities defined under dramatically different contracting mechanisms. The PIO consists of members from DOE-ORP, CHG, BNFL, and PNNL. The PIO reports to the DOE-ORP.

3.3 Hanford Interfaces

At the Hanford site, the TFC interfaces with DOE operations offices and several other contractors in accomplishing the TFC work. These interfaces allow use of common infrastructure and services that represent cost savings for the contractors and the government. The interfaces and common services are integrated into the TFC operations, and formal processes are in place to manage the interfaces and services (HNF-IP-0842, Vol. IV, Sec 2.8, *Interface Control*, HNF-4500, *Tank Farm System Interface Summary*).

U.S. Department of Energy, Richland Operations Office (DOE-RL) manages DOE activities at the Hanford Site except for the River Protection Project. Prime contractors include Battelle, which operates DOE's Pacific Northwest National Laboratory (PNNL); Bechtel Hanford Inc. (BHI); Hanford Environmental Health Foundation (HEHF); and Fluor Hanford, Inc. (FH). CHG utilizes services provided by DOE-RL contractors through task orders, Memorandums of Agreement, Interface Control Documents, service pool arrangements, and other mechanisms.

Pacific National Northwest Laboratory (PNNL) provides radiological instrumentation, dosimetry services, and environmental monitoring and analysis support.

Bechtel Hanford, Inc. (BHI) manages the Site-Wide Groundwater/Vadose Zone Integration Project, which provides integrated planning, identifies baseline assumptions and data needs, and ensures consistent technical approaches.

Hanford Environmental Health Foundation (HEHF) manages the Hanford Site occupational health services for Hanford workers. HEHF, as a prime contractor to DOE-RL, provides medical qualifications, medical monitoring, and occupational medical services. CHG's interface with HEHF is through the DOE-ORP Environment, Safety, Health and Quality (ESH&Q) organization, which then interfaces with the DOE-RL ESH&Q.

Fluor Hanford, Inc. (FH) manages the Project Hanford Management Contract (PHMC), which provides most of the Hanford Site infrastructure and support services activities (e.g., computer systems, roads/electricity/water, emergency management, site security, payroll/benefits management, etc.). Major services supporting CHG include:

- 242-A Evaporator operations (reduction of waste volumes)
- Liquid Effluent Retention Facility and Effluent Treatment Facility (management of liquid waste effluents)
- 222-S Laboratory (tank waste characterization)
- Waste Receiving and Processing (disposal of hazardous, low-level, radioactive, and mixed solid wastes)
- Construction services (Fluor Federal Services)
- Training Support
- **Protection Technology Hanford (PTH)** provides safeguards and security services under authorization order from CHG. PTH provides roving patrol and security planning services to CHG.
- **DynCorp Tri-Cities Services, Inc.** provides infrastructure services, including emergency response and fire system test and maintenance from the Hanford Fire Department. CHG funds these services through contributions to the site overhead funding pool.

3.4 External Regulatory and Oversight Agencies

Table 3 provides an overview of the TFC's external regulatory and oversight agencies and their primary focus.

External Regulatory and Oversight Agencies	Environmental Protection Agency	Washington Department of Ecology	Washington Department of Health	U.S. Department of Transportation	Defense Nuclear Facility Safety Board
Regulates all treatment/storage operation permits under RCRA and the Washington State Hazardous Waste Management Act	X	X			
Regulates radioactive air emissions	X		X		
Regulates non-radioactive air emissions		X			
Regulates liquid effluents		X	X		
Regulates offsite transportation of radioactive and non-radioactive hazardous wastes		X		X	
Ensures and enhances the safety of DOE's defense nuclear facilities operations					X

Table 3. External Regulatory and Oversight Agencies' Primary Focus for the Tank Farm Contractor.

4 TFC Company Level Programs

The TFC programs are based upon laws, regulations and DOE directives. Requirements from laws, regulations and DOE directives are incorporated into the TFC policies, plans and procedures providing management and workers with the understanding that safety is an integral part of each work activity. The requirements integrate ISMS at a management level and implement safety management into work practices at every level ensuring safety for the workers, public and the environment. Integration and implementation is achieved by using the guiding principles and core functions of ISMS. Procedures and/or plans that integrate ISMS are reviewed by the TFC ISMS Coordinator to ensure revisions or cancellations do not affect the integrity of links between the ISMS expectations and implementation. Procedure or plan revisions and the cancellations process are discussed in *Procedure Development and Maintenance* (HNF-IP-0842, Vol. I, Sec 2.1).

This section gives a brief description of key company level programs, identifies program plans and implementing procedures and references the most applicable Guiding Principal and/or Core Function. Section 5.0 describes overall ISMS implementation. These management systems and programs are essential to safe and efficient performance of work. These company level programs are implementing mechanisms that help integrate work planning and execution at the company, facility and activity levels. Appendix B provides an alphabetical listing of the TFC activities/programs, applicable mechanisms, and location of discussions throughout this ISMS Description.

4.1 Requirements Management

In accordance with the CHG contract with DOE (Contract Clause I.114, and DEAR Clause 970.5204-78, *Laws, Regulations, and DOE Directives*), CHG is responsible for compliance with standards and requirements applicable to the TFC through contract requirements. The TFC requirements management and procedures program provides a solid infrastructure for requirements identification, update, implementation, and compliance. The program mandates compliance with ESH&QA requirements derived from diverse sources. Compliance with these requirements ensures protection of the health and safety of the worker, the public, and the environment. The TFC has developed and implemented the approved S/RID (HNF-SD-MP-S/RID-001, *Tank Waste Remediation System Standards/Requirements Identification Document*) to meet this requirement. The S/RID undergoes periodic review and update to ensure it is maintained and current. The S/RID process (RPP-PRO-265, HNF-IP-0842 Vol. I, Sec 6.4, *Standards/Requirements Identification Document*) governs requirements management.

The processes for initiation, preparation, review, approval, change, revision, use, and periodic review of the TFC administrative and technical procedures are contained in HNF-IP-0842, Vol. 1, Sec 2.1, *Procedure Development and Maintenance*, and Sec 2.11, *Technical Procedure Control and Use*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Core Function 3 – Develop and Implement Hazard Controls)

4.2 Conduct of Operations

The TFC Conduct of Operations Program ensures that facility operations are managed, organized, and conducted in a manner that results in a high level of performance and, therefore, contributes to safe and reliable operations. The program consists of company wide procedures that are based on DOE Order 5480.19 and govern facility and activity operations. Procedure HNF-IP-0842, Vol. II, Sec 4.1.1 (*Operations Organization and Administration*) provides the TFC with specific guidance for implementation of the requirements of DOE Order 5480.19, and it defines the TFC Conduct of Operations Applicability Matrix. (Guiding Principle 2 - Clear Roles and Responsibilities, Guiding Principle 3 - Competence Commensurate with Responsibilities, Guiding Principle 7 – Operations Authorization, Core Function 4 – Perform Work within Controls)

4.3 Conduct of Maintenance

The DOE Order 4330.4b, *Maintenance Management Program*, procedure identifies nine general requirements and eighteen specific elements to structure an effective maintenance program within a nuclear facility. The TFC has prepared *Tank Waste Remediation System Maintenance Implementation Plan* (HNF-IP-MIP) to manage these requirements. (Guiding Principle 2 - Clear Roles and Responsibilities, Guiding Principle 3 - Competence Commensurate with Responsibilities, Guiding Principle 7 – Operations Authorization, Core Function 4 – Perform Work within Controls)

4.4 Construction

Construction Program requirements are detailed in procedures RPP-PRO-1997, *Construction Program Overview*; RPP-PRO-1998, *Construction Program Pre-Conceptual Activity*; RPP-PRO-1999, *Construction Program Conceptual Phase Activity*; and RPP-PRO-2000, *Construction Program Execution Phase*. These requirements are applied using a graded approach based on complexity, size, and risk of the construction activity. The Construction Program procedures are arranged to correspond to the three major phases of a typical construction activity (Pre-Conceptual, Conceptual, and Execution). The procedures define minimum approval requirements for construction documents associated with Formal Construction Projects and Minor Construction Activity documentation. Use of a Project Execution Plan helps ensure successful execution-phase activity is achieved. Field Construction Project work within tank farms is planned using the TFC work planning procedures and is released through the Shift Manager. (Guiding Principle 2 - Clear Roles and Responsibilities, Guiding Principle 3 - Competence Commensurate with Responsibilities, Guiding Principle 7 – Operations Authorization, Core Function 4 – Perform Work within Controls)

4.5 Engineering

The *Tank Farm Contractor Engineering Plan* (HNF-1947) describes the approach, processes, and programs for implementing the Engineering Program requirements that are applicable to the engineering design, risk management, systems engineering, project definition, technical baseline, operations engineering, safety engineering management, and nuclear safety. This plan is implemented by procedures in HNF-IP-0842, Vol. IV, (*Engineering*). The basic objectives of the TFC Engineering Design Program are 1) to define the processes that must be performed to consistently produce high-quality design products, 2) to identify the organizational positions responsible for making process and technical decisions related to engineering design, and 3) to provide guidance that supports decision making. Procedure HNF-IP-0842, Vol. IV (*Engineering*) also provides specific instructions for managing design-related activities and engineering changes to establish and maintain configuration management of the technical baseline. Any proposed change to design requirements, the physical configuration, or related documents initiates the engineering change control process that maintains configuration management of the technical baseline. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, Core Function 2 – Analyze the Hazards, Core Function 3 – Develop and Implement Hazard Controls)

4.6 Configuration Management

The technical baseline, developed in accordance with HNF-SD-WM-SEMP-002, *Systems Engineering Management Plan for the Tank Farm Contractor*; is controlled by configuration management. Configuration management establishes and maintains consistency and traceability among the configuration items (i.e., physical products, production processes, structures, systems, and components), requirements, and technical information. The configuration management discipline has five functional elements: configuration management administration, configuration identification, configuration status accounting, change control, and configuration management assessments. The application of these configuration management functions is tailored to project requirements and life-cycle phases. Specific information on configuration management and its implementation is described in HNF-1900, *Configuration Management Plan for the Tank Farm Contractor* (Weir 2000), and change control described in HNF-IP-0842, Vol. VIII, Sec 1.1, *Baseline Change Control* (CHG 2000). (Guiding Principle 5 –

Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, Core Function 3 – Develop and Implement Hazard Controls)

4.7 Environmental Management

RPP-1773, *River Protection Project Environmental Program Plan*, describes the TFC Environmental Management Program. The program elements are found in the five core functions of the ISMS and the elements of the ISO 14001, *Environmental Management System Standard*. The CHG environmental policy, which is contained in the RPP-1773, is implemented through environmental planning, implementation and operation, and assessment and corrective action programs. Implementation is achieved by using the principles of ISMS in integrating pollution prevention, environmental protection practices, and environmental regulatory requirements into planning and performance of work for the TFC. Specific implementing procedures are contained in, or are being transitioned from RPP Procedures to HNF-IP-0842, Vol. VI, *Environmental*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.8 Industrial Safety

Industrial Safety Programs prevent or minimize injury from industrial hazards. Specific programs are designed to control these hazards and include electrical safety, hazardous energy control, hazard communications (which includes Material Safety Data Sheets [MSDS]), control of flammable and combustible liquids and gases, hoisting and rigging, hot-work, fall protection, machine guarding, excavation, trenching and shoring, material handling and storage, hand and portable power tools, and walking and working surfaces. Safety professionals regularly inspect the workplace for industrial safety, fire protection, and emergency management compliance. Industrial safety also includes case management, which provides line management/employees with procedures for response to injuries/illnesses, injury/illness investigation, record-keeping, and reporting. Industrial Safety Programs are designed and managed by the TFC Safety organization. Line management is responsible for implementation as specified in procedures. The Industrial Safety Programs are described in HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*, and HNF-SD-WM-HSP-002, *Tank Farm Health and Safety Plan*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.9 Fire Protection

The Fire Protection Program controls fire hazards, minimizes fire losses when fires occur, and ensures an adequate level of life safety. Fire Protection Programs are designed and managed by the TFC Safety organization in cooperation with the TFC Engineering organization. Line management is responsible for implementing controls as specified in procedures. The Hanford Fire Department implements aspects of the Fire Protection Program including fire systems testing and inspection and the issuance of Fire Marshall Permits. Activities of the Hanford Fire Department are performed under the control and oversight of the TFC Safety organization. The Fire Protection Program is described in HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.10 Radiological Control

The Radiological Control Program is established to safely control ionizing radiation and handle radioactive materials for the TFC. The program requirements are derived from 10 CFR 835, *Occupational Radiation Protection*, and contained in the DOE-ORP approved *RPP Radiation Protection Program Plan* (HNF-IP-5184). The plan requirements are implemented by DOE/RL-96-109, *Hanford Site Radiological Control Manual*, pending transition to the HNF-5183, *Tank Farms Radiological Control Manual*. This program includes aspects of radiological control applicable to performing hazardous work at Tank Farm facilities, including:

- Excellence in radiological control
- Radiological standards
- Conduct of radiological work
- Radiological materials
- Radiological health support operations
- Training and qualification
- Radiological records.

Administrative procedures supporting the program are contained in HNF-IP-0842, Vol. VII, *Radiological Control*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.11 Chemical Management

The Chemical Management Program provides control processes that account for chemicals at Tank Farm facilities. The program requirements are contained in RPP-PRO-2258, *Chemical Management*, and HNF-IP-0842, Vol. VI, Sec 4.2, *Receiving, Storing, and Handling Chemicals*. This program establishes a set of requirements for managing chemicals in a manner that meets the following objectives:

- Ensures compliance with applicable regulatory and statutory requirements;
- Protects the worker, general public, and the environment;
- Implements a consistent approach to the management of chemicals among the TFC and its subcontractors; and
- Incorporates the Chemical Management System (CMS) Requirements agreed to by the Hanford Site major prime contractors on November 25, 1997.

(Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.12 Waste Management

The Waste Management Program includes provisions for waste minimization and pollution prevention. The Waste Management Program provides an effective and compliant process for the management of hazardous, low-level, conditional industrial, and mixed, low-level waste streams at the Tank Farm facilities. The prime objective is to ensure waste-related activities are performed in compliance with applicable laws and regulations governing these activities. Waste management procedures are contained in, or are being transitioned to, HNF-IP-0842, Vol. VI, *Environmental*. Tank Farms Operating Procedure TO-100-152, *Perform Waste Generation, Segregation, and Accumulation*, is the activity level implementing procedure for waste management, including waste minimization and pollution prevention. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.13 Criticality Safety

The purpose of the Nuclear Criticality Safety Program is to ensure that fissionable material in Tank Farm facilities remains subcritical under expected (i.e., normal and credible abnormal) conditions and configurations. This is accomplished by implementation of the key elements of Administrative Control (AC) 5.7, *Nuclear Criticality Safety* (HNF-SD-WM-TSR-006, *Tank Waste Remediation System Technical Safety Requirements*), as well as applicable requirements identified in HNF-SD-MP-S/RID-001, *Tank Waste Remediation System Standards/Requirements Identification Document*. The program requirements are contained in HNF-IP-1266, *Tank Farm Operations Administrative Controls*, Chapter 5.7, *Nuclear Criticality Safety*. Additional administrative procedures are contained in HNF-IP-0842, Vol. IV, Sec 6, *Nuclear Safety*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.14 Occupational Health and Industrial Hygiene

The Occupational Health and Industrial Hygiene Program recognizes, evaluates, and controls worker exposure to chemical, biological, and physical health hazards (including ergonomic hazards). Occupational health medically qualifies workers for their jobs, provides medical surveillance for potential exposures, evaluates workers for use of some personal protective equipment, provides first aid treatment and coordination for other medical treatments, provides rehabilitation and counseling services, and maintains medical records. The Occupational Health and Industrial Hygiene Program is designed and managed by the TFC Safety organization. Line management implements controls as specified in procedures. HEHF provides occupational health services under contract with DOE-RL. The TFC Safety organization interfaces with the HEHF through DOE-ORP, which interfaces through DOE-RL. More formal coordination agreements are under development. The Occupational Health and Industrial Hygiene Program is described in HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*, and HNF-SD-WM-HSP-002, *Tank Farm Health and Safety Plan*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.15 Quality Assurance

The Quality Assurance (QA) Program is contained in HNF-IP-0842, Vol. XI, Sec 1.1, *Quality Assurance Program*. The QA Program defines the TFC implementation of Title 10, Federal Regulations, Part 830.120 (10 CFR 830.120), *Quality Assurance Requirements*, and DOE Order 414.1, *Quality Assurance*. The QA Program consists of systems used to manage, perform, and assess work, including activities assigned to external organizations utilizing a graded basis for application. The *Quality Assurance Program Description* (RPP-MP-600) describes how organizations implement the QA Program. (Core Function 5 – Feedback and Continuous Improvement)

4.16 Emergency Management

The Emergency Management Program ensures emergency situations are promptly recognized, classified, and reported to the proper authorities, and that emergency response mitigates the hazard in a way that provides the greatest protection to the worker, the public and the environment. The Emergency Management Program is designed and managed by the TFC Safety organization. Line management is responsible for implementing emergency response as specified in procedures. The Hanford Fire Department and the Hanford Patrol also provide emergency response that includes Incident Command, fire response, emergency medical response, technical rescue response, hazardous materials response, and security emergency response. The Hanford Fire Department and the Hanford Patrol are controlled under the DOE-RL contract with Fluor Hanford, Inc. Hanford site procedures (DOE/RL 94-02, *Hanford Emergency Management Plan*, and DOE-0223, *Emergency Plan Implementing Procedures*) provide common procedures for both the TFC and the Hanford Fire Department/Hanford Patrol and ensure a consistent and coordinated emergency response. The emergency management program is defined in HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*. (Core Function 2- Analyze the Hazards, Core Function 3 – Develop and Implement Hazard Controls)

4.17 Training and Qualification

Training and Qualification Programs are established to ensure employees are trained to safely, competently, and effectively perform their job functions, while protecting themselves, the public, and the environment. Operations and support personnel who require a qualification program as defined in DOE Order 5480.20A are identified in the approved TFC Training Implementation Matrix (HNF-IP-0842 Vol. III, Sec 9.2, *DOE Standards Implementation – Training Implementation Matrix*). Training program descriptions have been developed to establish standards for technical staff positions requiring qualification (HNF-IP-0842, Vol. III, Sec 10, *RPP Training Program Description*). (Guiding Principle 3 – Competence Commensurate with Responsibilities, Core Functions)

4.18 Safeguards and Security

The Safeguards and Security Program provides physical and information security and is designed and managed by the TFC Safety organization. Line management is responsible for implementing security controls as specified in procedures. Patrol, access control and security planning services are provided by PTH through work orders and authorizations. The safeguards and security program is defined in HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*. (All Guiding Principles and Core Functions)

4.19 Issues Management

The HNF-IP-0842, Vol. I, Sec 2.4, *Corrective Action Management*, describes the TFC Corrective Action Management Program. This program is an integrated company program to assist management in monitoring the status of compliance and corrective action activities. The company has implemented the program to enable management to understand and prioritize, based on risk, the significance of facility events or conditions. The program provides for the integration of the company's self-assessment and independent assessment processes, occurrence reporting, and lessons learned programs. With the integration of these separate activities, the Corrective Action Management Program provides for the prioritization of the issues for senior management attention. The program also provides a mechanism for ensuring that adequate corrective actions are implemented to prevent recurrence of undesirable events or conditions by ensuring that root causes are identified and that corrective actions address the root causes. The program uses the company's approved tracking system, the Action Tracking System. The system also tracks issues related to the Price Anderson Amendments Act Non-compliance Tracking System (NTS). (Core Function 5 – Provide Feedback and Continuous Improvement)

4.20 Lessons Learned Program

The HNF-IP-0842, Vol. II, Sec 4.6.3, *Lessons Learned Program*, describes the TFC Lessons Learned Program established to provide a method for identifying and highlighting good work practices within the TFC and from sources outside of the company. Distribution of information about those good work practices allows others planning similar work to gain efficiencies. The program also provides a method to identify work practices that could affect similar work within tank farms adversely. By distributing information on those practices, the program helps the TFC avoid adverse impacts to the work being planned and recurrence of previous events. The Lessons Learned Coordinator disseminates information requiring review for applicability by facility and subject matter experts. Those experts are responsible for identifying any required corrective actions, ensuring completion, and reporting the status to the Lessons Learned Coordinator.

4.21 Independent Oversight and Trending

Programs for independent assessment and tracking and trending performance support the TFC operational and ISMS goals. Independent oversight is conducted using HNF-IP-0842 Vol. XI, Sec 1.4, *RPP Independent Assessment*. The program provides value-added assessment and examination services of the adequacy and effectiveness of the TFC's management control systems. For nuclear safety issues that fall under 10 CFR 830, 830.120, and 835, evaluations of performance and the effectiveness of corrective actions are provided by the Price Anderson Amendments Act Compliance organization per HNF-IP-0842, Vol. I, Sec 1.5, *Price Anderson Amendments Act Program Plan*. Trending is conducted using HNF-IP-0842, Vol. I, Sec 2.4, *Corrective Action Management*. (Core Function 5 – Provide Feedback and Continuous Improvement)

4.22 Self-Assessments

As part of the QA Program, each organization performs self-assessments on the effectiveness of its processes and results. The TFC also has a comprehensive *Management Assessment Program (MAP)* (HNF-IP-0842, Vol. I, Sec 2.10). Management assessments are performed for the purpose of ensuring: 1) progress in reaching strategic goals and objectives, 2) adequate implementation of mission-related management programs, 3) the performance capability of safety management systems, 4) the quality of products and services, 5) the effectiveness and

efficiency of work processes for continuous improvement, 6) the degree of compliance with contractual and regulatory requirements, and 7) corrective action status. (Core Function 5 – Provide Feedback and Continuous Improvement)

4.23 Packaging and Transportation

The Hanford Site Packaging and Transportation Program is established to ensure materials and items are packaged and shipped on-site or off-site safely and in accordance with applicable regulations. The program is based on 49 CFR regulations and DOE Orders. The Packaging and Transportation Program also involves the design, procurement, and selection of appropriate packaging to mitigate the hazards of the material being shipped. RPP-PRO-154, *Responsibilities and Procedures for All Hazardous Material Shipments*, provides instructions for the receipt and shipment of hazardous material. RPP-PRO-157, *Radioactive Material/Waste Shipments* and RPP-PRO-156, *Non-Radioactive Hazardous Materials/Hazardous Waste (HM/HW) Shipments*, address packaging and transportation of radioactive and non-radioactive hazardous materials and waste, respectively. RPP-PRO-166, *Transportation Safety Training Requirements*, contains training and qualification requirements. (Guiding Principle 3 – Competence Commensurate with Responsibilities, Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, Core Function 3 – Develop and Implement Hazard Controls, Core Function 4 – Perform Work within Controls)

4.24 Nuclear Safety

The purpose of the Nuclear Safety Program is to assess risk to facility workers, onsite workers, and the offsite public and provide controls to prevent and mitigate risk within acceptable guidelines. Risk assessment is accomplished by performing hazard and safety analysis of representative and bounding accident scenarios related to the potential release of radiological and toxicological materials. The analyses are documented in HNF-SD-WM-SAR-067, *Tank Waste Remediation System Final Safety Analysis Report*. Controls that prevent and/or mitigate the risks are documented in HNF-SD-WM-TSR-006, *Tank Waste Remediation System Technical Safety Requirements*. Implementation of Administrative Controls are outlined in HNF-IP-1266, *Tank Farm Operations Administrative Controls*. (Guiding Principle 5 – Identification of Safety Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed, All Five Core Functions)

4.25 Employee Concerns Program

The Employee Concerns Program (ECP) (RPP-PRO-410, *Employee Concerns Resolution*) provides a way to ensure appropriate attention and response to any concerns related to: safety; health; security; quality; environmental protection; business ethics; compliance with laws and regulation; fraud, abuse, or mismanagement; or physical working conditions. Any employee of the TFC may submit employee concerns using the ECP. Although the primary path for resolving employee concerns continues to be through supervisors and line management, the freedom of an individual to express a concern to someone other than his or her superior is considered to be a necessary element of a safety conscious work environment. (Core Function 5 — Provide Feedback and Continuous Improvement)

4.26 Work Planning and Control

The TFC uses an integrated planning process to define the work scope, schedules, and cost data necessary to establish and control the integrated baselines that are summarized in the Multi-Year Work Plan (MYWP). The TFC and TFC subcontractors use an integrated planning process. The TFC functional and support organizations participate on integrated planning teams. The integrated planning process has interfaces with other policies, plans and procedures related to contracts, work authorization, system engineering, estimating, scheduling, work execution, and performance reporting. Work activities are evaluated for safety, quality, environmental impacts and regulatory compliance as part of the integrated planning process (HNF-IP-0842, Vol. X, Sec 3.8, *Integrated Planning Process*). Specific work instructions are prepared using the TFC work control process. This process

uses a graded approach to implement requirements while providing the level of discipline required to maintain safe operation of the facility. The work control process applies to work scheduling, planning, approval, release, performance, and post-review using work instructions for maintenance, modification, fabrication, and construction on structures, systems, and components at tank farms. The work control procedure provides guidance as to when formal written work procedures are and are not required. (HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*). (Guiding Principle 4 – Balanced Priorities, Core Function 1 – Define the Scope of Work, Core Function 2 – Analyze the hazards, Core Function 3 – Develop and Implement controls, Core Function 4 – Perform Work Within Controls)

5 ISMS Guiding Principles and Core Functions

The preceding portions of this document have addressed the basic structure of the ISMS as it is implemented via mechanisms prescribed in company level programs and procedures. This section addresses in greater detail the specific mechanisms and how they are integrated at the company, facility, and activity levels to ensure work is performed safely in accordance with the seven guiding principles and five core functions. Figure 3 provides a visual of key the TFC ISMS processes per core function. Appendix B illustrates the key elements of the ISMS infrastructure, with references to the broader set of implementing procedures and other mechanisms that make up the TFC ISMS.

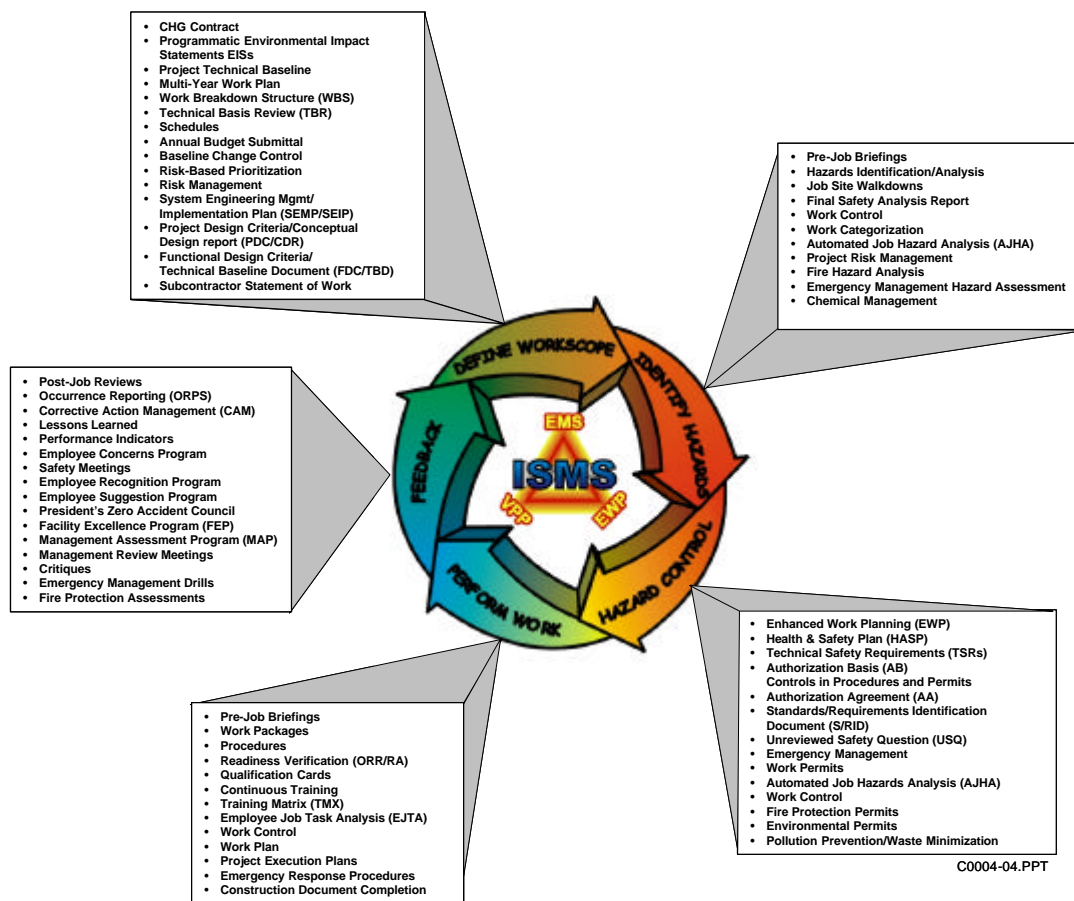


Figure 3 The TFC ISMS Processes per Core Function CHG Safety Policy

CHG's safety policy is documented in HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*. The safety policy is to deliver outstanding safety and health performance that provides the safest and healthiest workplace for our employees and for our neighbors in the community. Progress in achieving safety excellence is achieved by:

1. Reducing occupational injuries and illnesses to the lowest achievable level, with an ultimate goal of zero occupational injuries/illnesses.

2. Systematically reducing the risk of injury/illness to our employees through the effective mitigation of hazards.
3. Complying with applicable laws and regulations.

The following core principles guide achievement of the goal of safety excellence:

- Each individual is responsible for personal safety and for promoting a safe, healthful, and environmentally sound workplace.
- Line managers are personally responsible for the protection of their employees, the public, and the environment.
- Accidents are preventable. Understanding accident causes and contributing factors improves our long-term safety performance.
- Employee involvement in safety is the best mechanism to ensure that accidents are prevented and that lessons learned are rapidly and effectively communicated throughout the organization.
- We are responsible neighbors in the Hanford community and work with other Hanford and Tri-Cities organizations to help ensure community safety and health.

5.1 Guiding Principle 1 – Line Management Responsibility for Safety

The TFC organization satisfies the guiding principle that line management is responsible and accountable for integrating safety into the performance of work. The ISMS is focused on providing the line manager with the technical resources necessary to fulfill this responsibility. It is important to clearly define the term “line management” so that the safety management roles and responsibilities are understood. As defined in DOE G 450.4-1, line management is defined as *“any management level within the line organization, including contractor management, that is responsible and accountable for directing and conducting work.”* Work is broadly defined to include physical work, design, engineering, maintenance, operations, testing, and assessment.

5.1.1 CHG Flowdown of Authority

Line direction for project work activities flows down from DOE-ORP through the CHG President and General Manager to a cognizant Vice President. Within the Vice President organizations, integrated project organizations or job-specific teams are utilized in the planning and execution of work. Under the TFC procedures, the cognizant manager utilizes operators, crafts, technicians, engineers, and other subject matter experts in work planning to assist with:

- Identifying work scopes and hazards
- Performing job hazard analyses
- Conducting As Low As Reasonably Achievable (ALARA) reviews to minimize radiological exposure and exposure to other hazards
- Implementing the necessary controls to ensure protection of the worker, the public, and the environment.
- Implementing self assessments
- Providing input to continuous improvement
- Self assessing implementation
- Providing input to continuous improvement

When the TFC or a TFC subcontractor organization is performing work in tank farms, the organization’s line management is responsible for the safe conduct of the work. However, the Shift Manager is responsible for releasing work to be performed, to ensure that the scope of work is within the AE (see Section 5.7.2, *Operations Authorization*) for the facility, and for approving system restoration as required. Field direction flows down through the cognizant line manager, supervisor and FWS for the work activity. Planning and execution of work

and day-to-day operations control are conducted in accordance with a common set of HNF-IP-0842 procedures, regardless of sponsoring organization. A CHG project manager is assigned to construction projects and major subcontractor activities to fulfill the cognizant line manager function.

Trained personnel using approved procedures perform authorized work, including design, engineering, maintenance, operations, testing and assessment. As discussed in Section 5.3, *Guiding Principle 3 – Competence Commensurate with Responsibilities*, company processes govern the review of qualifications, hiring, and training of personnel. Managers and supervisors direct and monitor the performance of work. The hazards and complexity of the work determine the level of rigor applied to training, procedures, and control of work. Accordingly, a high level of rigor is applied for work on tank farm systems and equipment, tank waste operations, and nuclear facility maintenance as discussed in the following paragraphs. As described in Section 5.4.4, *Subcontractor ISMS Flowdown*, a Buyer's Technical Representative (BTR) provides day-to-day contract direction to subcontractors.

Environmental, Safety, Radiological Control, and Quality Assurance managers and supervisors support project organizations or teams. They support project organizations and teams by providing technical support resources, as well as technical direction to staff and technicians supporting work in the field. The cognizant technical organizations are the decision-makers on technical issues and matters during integrated team job planning. Day-to-day direction comes from the project organization or team line manager.

5.1.2 Tank Farms Field Activities

Two key organizations direct field activities in the tank farm areas in support of the TFC mission. The first is the Vice President of Tank Waste Operations (TWO) who manages tank farm facilities in a safe and regulatory compliant manner and provides operational control for the TFC facilities. TWO is primarily responsible for staging tank wastes for retrieval and delivery to the privatization contractor, characterization, stabilization, and operations support. The organizations within TWO plan and direct projects and field activities associated with mission activities. TWO Shift Operations controls tank farm operations on a day-to-day basis.

The second is the Vice President of Project Delivery who provides the overall design and construction project support to CHG. This support includes project design and construction activities ranging from conceptual design to the beginning of operations. The organization is responsible for managing and directing the execution of design, construction and acceptance testing of new or modified facilities required for operations, retrieval and disposal mission activities.

Any organization conducting work in tank farms, including subcontractor organizations, are under the operational direction of the TWO Shift Operations organization Shift Manager. General entry into the tank farms is controlled to ensure personnel have the requisite radiological and hazardous waste operations and emergency response training for unescorted access, or are escorted. Shift Operations is responsible on a day-to-day basis for ensuring work and activities released for work in tank farms are within the AE described in the company AA. Shift Operations organization key responsibilities include maintaining command and control of activities in the tank farms, perform as building emergency director for emergencies concerning tank farm facilities, maintaining the controlling organization lock and tag control for operational activities, establishing the lock and tag interface between construction and operating systems, and performing shift routines and surveillance activities.

The following is a summary of the specific operations responsibilities, key direct reports, and line and support organization managers supporting the conduct of work in the field.

- **Shift Senior Technical Advisor (TWO Shift Operations):** The Shift Senior Technical Advisor (SSTA) is responsible for oversight of shift activities.
- **Shift Manager (TWO Shift Operations):** The Shift Manager (SM) is responsible for command and control of the facility during the shift. The SM manages the facility by

maintaining a "big picture" of activities and does not allow details to cause loss of overall perspective. The SM provides first line direction to bargaining unit personnel in performing various tasks involved with the safe operation of the plant. The SM maintains configuration control and coordinates activities in assigned facilities.

- **Operations Engineer (TWO Line Organizations):** The Operations Engineer (OE) assists the SM with first line direction to bargaining unit personnel in performing various tasks involved with the safe operation of the tank farm facility. The OE performs the duties of the SM in his/her absence. The OE provides direct supervision of operational teams or field support personnel performing operating procedures on tank farm equipment or systems. The OE maintains configuration control and coordinates activities in assigned facilities.
- **Field Work Supervisor (Performing Organization):** The FWS is responsible for field implementation of work authorization instructions. The FWS is trained, qualified, and authorized by the cognizant manager to perform this function. The FWS responsibilities include supporting planning, directing work execution, and post-job reviews.
- **Field Workers (Performing Organization):** Field worker responsibilities include performing work activities in accordance with approved procedures as directed by cognizant supervision. Field workers actively participate in the development of work instructions.

Every employee is empowered to exercise "Stop Work" authority to prevent performance of an unsafe act or correct an unsafe condition (RPP-PRO-3468, *Stop Work Responsibility*).

5.1.3 Committees and Boards

The TFC uses committees and boards to achieve integration between the TFC organizations and between the TFC and other contractors on the Hanford Site. In support of managing integrated projects, processes, and requirements, the TFC utilizes committees and boards for policy review and approval, project integration, and coordination within and among functional activities.

Section 5.1.3.1 describes those committees and boards sponsored by the TFC, and Section 5.1.3.2 identifies those sponsored by other Hanford organizations in which the TFC participates.

5.1.3.1 Tank Farm Contractor-Sponsored Committees

The TFC-sponsored committees and boards have formal charters and defined responsibilities and authorities in HNF-IP-0842 administrative procedures. Key committees and boards are described below:

President's Zero Accident Council and Subcouncils: Each TFC employee (including subcontracted personnel and sub-contractor points of contact) is represented on the CHG President's Zero Accident Council and one of the five employee Zero Accident Subcouncils, based on their organization and work area. The safety councils increase safety knowledge and awareness and instill safety values through employee participation. The councils are led by the employees and allow direct employee involvement in safety activities and initiatives such as housekeeping, safety improvements, supporting safety meetings, and communication/awareness activities. Examples include participation in Safety Expo; initiating walkway, stair, and lighting improvements; and promoting seat belt usage. The safety councils foster information exchange by providing a forum to discuss safety issues, potential solutions, and safety statistics.

Plant Review Committee: The President and General Manager chairs the Plant Review Committee (PRC) for the TFC. The PRC facilitates resolution of potential unreviewed safety question (USQ) issues and other matters for safe operation of the tank farm facilities.

Joint Test Review Group: The Joint Test Review Group (JTRG) conducts thorough reviews of test procedures to ensure they can be done safely, to ensure compliance with applicable procedure requirements and to adequately demonstrate accomplishment of test objectives. The JTRG conducts thorough reviews of test plans to ensure the scope of testing and inspections provide a product that satisfies operational and safety requirements. The JTRG reviews provides the Facility Manager a higher level of confidence the test can be done safely and efficiently. The synergistic review by the JTRG provides a basis for test procedure approval and release by Operations. The JTRG typically consists of the Chief Test Director, Project Manager, Engineering Manager of the facility that will operate the equipment, Design Authority, and Test Director.

Tank Waste Operations Corrective Action Management Board: The Tank Waste Operations Corrective Action Management Board provides a management forum to ensure that conditions affecting key processes, quality, safety, or the environment receive appropriate attention. The board ensures that corrective action practices are consistent across TWO. The Tank Waste Operations Corrective Action Management Board sets policy for how corrective action management is implemented within the organization, identify process improvements that could be developed using the TFC's reengineering approach, prioritize corrective action issues, and perform data reviews to identify potential adverse conditions so preventive measures are initiated.

Tier 1 Safety Review Board: The Tier 1 Safety Review Board reviews new or revised Authorization Basis (AB) documents, including annual updates.

Class 1/2/3 Change Control Boards: The "1/2/3" change control board system is used by the RPP to put responsibility/accountability for baseline management at the project/sub-project level of the TFC Work Breakdown Structure (WBS) and ensures that Change Requests destined for DOE-ORP are of the highest quality. The 10 major elements of RPP WBS are:

1. Tank Waste Characterization WBS 1.1.01/PBS TW01
2. Tank Safety Issue Resolution WBS 1.1.02/PBS TW02
3. Tank Farm Operations WBS 1.1.03/PBS TW03
4. Retrieval WBS 1.1.04/PBS TW04
5. Process Waste Support WBS 1.1.05/PBS TW05
6. Privatization Phase 1 WBS 1.1.06/PBS TW06
7. Privatization Phase 2 WBS 1.1.07/PBS TW07
8. Privatization Infrastructure WBS 1.1.08/PBS TW08
9. Immobilized Storage and Disposal WBS 1.1.09/PBS TW09
10. Management Support WBS 1.1.10/PBS TW10

The CHG RPP "1" board acts on changes that have technical/work scope/schedule/budget revisions that exceed established thresholds of the "2" board. The "2" and "3" board thresholds are defined in the board charter.

Voluntary Protection Program Steering Committee: To provide direction and focus toward achieving VPP recognition, a steering committee was established. The committee charter is to develop the VPP and to raise employee awareness as to what VPP recognition is and what they can do to help achieve it. A part of the application development is the additional effort of helping the organization recognize which systems, functions, and activities are a part of the VPP assessment criteria. With this broadened awareness, employees are then more aware of how their activities support and impact their safety program and their safety. The VPP is a part of the overall ISMS.

Safety Meetings: Mandatory safety meetings are scheduled monthly for the TFC employees (including subcontractors). The meetings promote safety by addressing a different health or safety topic each month,

including information on basic issues, control methods, and established programs. Employees are encouraged to ask questions and participate in each meeting by sharing their ideas on safety issues.

Facility ALARA Committee: The Facility ALARA Committee is a senior management level, multi-disciplined committee chaired by the Deputy Director of TWO. This committee reviews and advises facility management on improving the facility ALARA Program. It oversees the activities of the TFC Radiological Awareness Committee and the ALARA Joint Review Group. By taking an active approach to addressing issues and concerns, the Facility ALARA Committee identifies and creates opportunities for improvement and manages risk and benefits for the TFC work.

ALARA Joint Review Group: The ALARA Joint Review Group is a senior, experienced, multi-disciplinary team that ensures high radiological risk work plans are comprehensive and thoroughly reviewed, including contingency plans for emergent situations.

Radiological Awareness Committee: The Radiological Awareness Committee is a second, multi-disciplined, multi-level facility work force committee. The Radiological Control Manager chairs it. This Awareness Committee promotes radiological improvements with emphasis on radiological program improvement to keep personnel radiation exposure at ALARA levels and minimize radiological risk associated with the TFC work.

Flammable Gas Equipment Advisory Board: The Flammable Gas Equipment Advisory Board (FGEAB) is chartered to review proposed activities and equipment for compliance with the flammable gas ignition control requirements of the TFC AB and to apply the AB definitions of tank regions to specific configurations not delineated in the AB. The FGEAB is chartered to minimize the risk to persons, property, and environment from the hazards arising from the use of equipment that could produce a spark with sufficient energy to cause ignition in a flammable gas environment. The scope of the FGEAB's review is limited to flammable gas AB controls in areas not classified in accordance with National Fire Protection Association (NFPA). For areas formally classified in accordance with NFPA, rulings on compliance will continue to be made by the Hanford Electrical Codes Board (HECB).

Flammable Gas Data Review Group: The Flammable Gas Data Review group is chartered to evaluate the tank behavior prior to dome intrusive, waste intrusive, and waste disturbing activities for double-shell tanks designated as flammable gas tanks. At the discretion of the TFC, reviews may be conducted for other tanks. The Flammable Gas Data Review group examines available data on tank behavior in order to establish 1) whether the behavior has changed in an unexpected manner or 2) whether the data support the existence of a "potential near term" gas release event. The activities of the Flammable Gas Data Review group serve as a defense-in-depth measure to the ventilation, monitoring, and ignition source controls placed in the TFC AB for the management of the flammable gas hazard. The Flammable Gas Data Review group has the appropriate technical background to be familiar with the flammable gas safety issue, waste tank operations, and the AB for tank farms.

Employee Suggestion Program Council: The Employee Suggestion Program (ESP) Council is chartered to provide leadership and direction for the TFC ESP. The council provides a mechanism for evaluating and implementing employee suggestions and providing feedback to employees on the disposition of their suggestions. The Council sponsors recognition and reward programs to encourage employee participation. The council is comprised of representatives (Council Advocates), appointed by each CHG level one manager as the representative of their organization to the ESP council. Ad hoc members may be added to the Council as needed to provide risk assessment, ESP cost savings validation, program assessment, or other support. The council members represent their respective organizations on the Council, facilitating communication and providing direction for the ESP. The Council meets regularly, or by special request of any of its members.

Employee Recognition Council: The TFC Employee Recognition Council's (ERC's) program is to promote and recognize excellence throughout the TFC organization to encourage stronger, safer, quality-sensitive, and cohesive teamwork. The ERC consists of representatives from CHG organizations. The ERC selects the award

winners and promotes the recognition process. There are six award categories (i.e., Safety, Hourly, Nonexempt, Exempt, Manager, and Team). Winners from each category are chosen monthly and become eligible for an annual award. Each level of the award process recognizes exemplary performance.

5.1.3.2 Other Hanford Committees

The TFC participates in committees and boards sponsored by other Hanford organizations. Participation on these committees and boards facilitates information exchange, the development of common approaches where appropriate and cost effective, and networking to enhance functional area cooperation. The responsibility for determining participation is with the appropriate TFC functional organization.

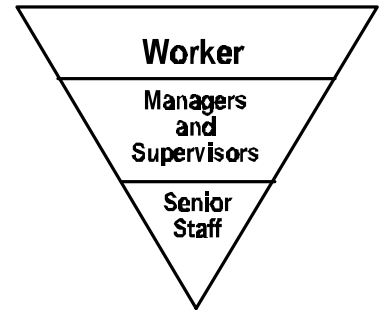
The TFC participates in the following key committees and boards sponsored by other Hanford organizations. Provided below is a listing of the key committees and boards sponsored by other Hanford organizations in which the Tank Farm Contractor participates.

- Hanford President's Zero Accident Council
- Hanford Radiological Control Forum
- Project Hanford Management Systems Radiological Control Center of Expertise
- Hanford Instrument Evaluation Committee
- Hanford Personnel Dosimetry Advisory Committee
- Hanford Electrical Codes Board
- Hanford Workplace Electrical Safety Board
- Hanford Fire Protection Forum
- Hanford Fire Marshal Advisory Board
- Hanford Respiratory Protection Committee
- Hanford Protective Clothing Committee
- Hanford Occupational Health Process Committee
- Hanford Lock and Tag Committee
- Fluor Hanford Safety Center of Expertise
- Fluor Hanford Emergency Management Center of Expertise
- Hanford Emergency Preparedness Council
- Hanford Traffic Safety Committee
- Hanford Health Exposure Worker Group
- Hanford Beryllium Advocates
- Hanford Beryllium Chronic Beryllium Disease Prevention Program
- Hanford EXPO Core Team
- Fluor Hanford Voluntary Protection Program Champions
- Hanford Maintenance Management Board
- Hanford Central Environmental Committee
- Hanford Chemical Management Council

5.2 Guiding Principle 2 – Clear Roles and Responsibilities

Roles and responsibilities are defined by 1) assignment within the organization or project and 2) the function or activity being performed, which are contained in the TFC policies and procedures. Like the institutionalized ISMS process, roles and responsibilities relate to company level, facility level, and activity level, with an on-going iterative interaction between the management levels. The majority of the senior management roles and responsibilities are at the company level, whereas the majority of the field worker's roles and responsibilities are at the activity level. Specific roles and responsibilities for individuals are delineated in union contracts, position descriptions, performance expectations, and the TFC procedures and policies.

Management and workers at every level are responsible and accountable for understanding and implementing established company standards for safety, environmental protection, quality, and efficiency. Personnel are accountable for their personal safety and the safety of their peers, the public, and the environment. The TFC uses several mechanisms to communicate and impose personnel accountability. Expectations are communicated in the CHG Safety Policy (HNF-IP-0842, Vol. IX, Sec 1.1, *Health and Safety Program Description*), the CHG Environmental Policy (HNF-1773, *Environmental Program Description for the Tank Farm Contractor*) and the annual performance appraisal process (HNF-IP-0842, Vol. X, Sec 4.4, *Group Performance Appraisal Process*, and RPP-PRO-050, *Managing Employee Performance*). Positive recognition of personnel accountability stewardship is applied when warranted (HNF-IP-0842, Vol. X, Sec 4.5, *Employee Recognition and Fee Sharing Plan*), as is *Employee Discipline* (RPP-PRO-033). Management at every level ensures that employees understand their role in implementing these standards as an integral part of meeting company objectives and customer expectations. Managers and workers are responsible for routinely communicating with superiors, peers, and subordinates in order to identify barriers to successful integration of safety into work planning and execution, or barriers to meeting company objectives and customer expectations, and taking action to remove these barriers. Management performs field observations and communicates directly with workers, managers, supervisors, and leads to assess the achievement of company objectives and customer expectations.



Workers: The worker focus is primarily on the activity level for each of the core functions of the ISMS. Workers participate in work planning, hazard identification and control, work performance within the controls including stop work authority as described in RPP-PRO-3468, *Stop Work Responsibility*, and feedback and continuous improvement.

Field Work Supervisors and Leads: FWS and Leads are responsible for directing work activities and managing the work environment. Their focus is primarily on the activity level for each of the core functions of the ISMS. FWS and Leads participate in work planning, hazard identification and control, work performance within the controls, and feedback and continuous improvement.

First Line Managers: First Line Managers are responsible for ensuring that the work environments created by FWS and Leads are producing results that support and advance company and customer objectives. Their focus is primarily on the activity and facility level for each of the core functions of the ISMS. First Line Managers also ensure company policies and procedures are effectively implemented. First Line Managers coordinate resources and work activities with other organizations, provide technical direction according to their qualification, provide direction for work, and report work progress and quality of performance.

Managers: Project, department, and technical support managers are involved in providing technical direction, resources, planning, reporting, personnel and issue management in support of specific projects and their CHG areas of responsibility. Their focus is primarily on the programmatic and facility level, with support to senior

management on company level matters. Managers ensure activities support established budgets, milestones, and customer expectations.

Vice Presidents and Directors. Vice Presidents and Directors are responsible for ensuring that company standards are established and implemented that meet customer expectations for executing work in a safe, proper, and efficient manner. Their focus is primarily on the company level, with overall project and program management and support to the customer. Senior Management interfaces with the customer, regulators, stakeholders, and the public on company and project matters.

President and General Manager: The CHG President and General Manager is responsible for the overall management and operation of the TFC and is supported by the Executive Vice President, Vice Presidents and Directors.

DOE-ORP Oversight: DOE-ORP interfaces with CHG to ensure continued excellence in mission execution and ES&H management. The DOE-ORP and CHG senior managers collaborate to clearly define company and project performance expectations and priorities. The strategic elements of the DOE-ORP ESH&Q policy include:

- Safe achievement of DOE-ORP's mission, which is critical to this community and the nation
- Doubling productivity while achieving excellence in environmental protection, safety, health, and quality
- Ensuring that excellence in ESH&Q enhances productivity
- Integrating ESH&Q and project performance, with a focused goal of accelerated project progress done in a safe, quality, and environmentally sound manner, using our tools of ISMS and VPP
- Ensuring the DOE and contractor workforce is fully involved, engaged and partnered with the accomplishment of the mission.
- Defining clear roles for companies (i.e., DOE contractors and private industry) carrying out work at the RPP
- Recognizing and assimilating lessons learned in key activities required to achieve DOE and RPP long-term goals.

5.3 Guiding Principle 3 – Competence Commensurate with Responsibilities

The TFC Human Resources, the Training organization, and line management work together to ensure work is performed safely by qualified workers, using approved procedures. The work to be performed by an organization is evaluated against standards and requirements, and management determines the staffing, training, and qualification requirements for the organization's positions. Human Resources supports this activity by 1) maintaining position descriptions that define position titles, education and experience requirements for the TFC work and 2) supporting the preparation of new position descriptions as needed. Personnel are selected from sources within or outside the company. In either case, training, education, and experience are evaluated before personnel are assigned to a position to ensure each worker meets the predefined requirements (RPP-PRO-021, *Employment and Personnel Placement*). Once people are assigned to a position, their manager determines the company, facility, position or task training, and qualifications required to be completed (HNF-IP-0842, Vol. III, Sec 1.1, *RPP Training Purpose and Functions*). For subcontracts, the BTR ensures subcontract personnel have training and qualifications commensurate with the responsibilities (HNF-IP-0842 Vol. X, Sec 3.14, *Buyer's Technical Representative Assignment and Duties*).

The Training organization supports management in this activity by providing a web-based tool implementing HNF-IP-1184, *Training Requirements*. This tool assists managers in determining 1) training requirements based on working conditions (i.e., hazards to which the individual will be exposed, such as, blood borne pathogens or heat stress), 2) tasks the employees will perform (e.g., crane operations, lock and tag), 3) requirements based on

worker classification (e.g., FWS, radiological worker), and 4) technical staff position qualifications (e.g., design authority, cognizant engineer).

An approved TFC Training Implementation Matrix identifies operations and support personnel who require a qualification program as defined in DOE Order 5480.20A (HNF-IP-0842 Vol. III, Sec 9.2, *DOE Standards Implementation – Training Implementation Matrix*). The following training program descriptions have been developed to establish standards for technical staff positions requiring qualification (HNF-IP-0842, Vol. III, Sec 10, *RPP Training Program Descriptions*):

- 10.1 Instructional Staff Qualification Program Description
- 10.2 Manager Qualification Program Description
- 10.3 Technical Staff Qualification Program Description
- 10.4 Operations Engineer/Shift Operations Manager Qualification Program Description
- 10.5 Operator Qualification Program Description
- 10.6 Maintenance Qualification Program Description
- 10.7 Supervisor/Person-In-Charge Qualification Program Description
- 10.8 Unreviewed Safety Question Qualification Program Description
- 10.9 Procedure Process Program
- 10.10 Radiological Control Qualification Program Description
- 10.11 Stationary Operations Engineer Qualification Program Description
- 10.12 Maintenance Planner Qualification Program Description
- 10.13 Miscellaneous Professional Staff Qualification Program Description
- 10.14 Life Cycle Project Qualification Program Description

Operators are required to maintain certification proficiency, including requesting assignments that will maintain proficiency (HNF-IP-0842 Vol. II, Sec 2.1, *Proficiency Requirements*). Any person to perform work within a hazardous waste zone must have the necessary training to enter the Access Control Entry System (HNF-IP-0842, Vol. VII, Sec 2.4, *Access Control Entry System Roles Guidance*).

Another process assists managers in determining necessary employee medical qualifications and obtaining necessary monitoring based on the job requirements, hazards, exposures, and overall risk associated with the assigned workscope. This process uses an automated employee job task analysis (EJTA) which supports the collection of data necessary for a risk-based approach to medical qualification and monitoring. An EJTA is prepared for each employee (RPP-PRO-111, *Occupational Medical Qualification and Monitoring*). A similar process is used to ensure proper medical qualifications and monitoring of subcontract personnel (HNF-IP-0842, Vol. IX, Sec 2.3, *Subcontractor Safety Oversight*).

5.4 Core Function 1 – Define the Scope of Work

Defining work scope is a process in which DOE mission expectations are defined, prioritized and divided into discrete activities that account for the associated hazards, requirements, controls, and funding needed to complete the mission. As the facility owner, DOE defines the mission and requirements. The contractor establishes the mechanisms for accomplishing the mission, to assign responsibility, and to implement work priorities through risk-informed planning for the effective and efficient use of resources.

Applicable Guiding Principles

1. Line Management Responsibility
2. Clear Roles and Responsibilities
3. Competence per Responsibilities
4. Balanced Priorities

Paragraphs 5.4.1 through 5.4.4 describe definition of work scope and balanced priorities primarily at the company level as part of the TFC business, budget, and contract process. Paragraph 5.4.5 describes how this element is accomplished at the facility/activity level.

5.4.1 Translate Mission into Work

The Multi-Year Work Plan (MYWP) translates the TFC mission elements into work, which includes objectives, priorities, expectations and measures that are monitored and evaluated against the TFC life-cycle baseline. Work is performed in accordance with contract requirements established between CHG and DOE (Contract DE-AC06-99RL14047).

Fiscal year (FY) planning is initiated annually through direction received from DOE-ORP in the Budget Updating Guidance and is consistent with the mechanism established in the *Basic Planning and Work Performance of Hanford Site Environmental Management Activities* document (DOE/RL-97-52). Guidance is also provided for updating the MYWP (RPP-PRO-522, *Multi-Year Work Planning*).

Development of the MYWP is an iterative process of translating mission objectives from high-level program and project schedules into lower-level project and work activities to ensure resources are prioritized and appropriately allocated. Through the annual planning process and baseline change control, the execution year and out year estimate basis continues to be refined, updated and validated.

When detailed activity planning is completed, Project activities are rolled-up into the Project Priority List (PPL), and additional analysis and reviews are performed by CHG and DOE-ORP to prioritize planned work based on budget availability. This review and approval process ensures that appropriate considerations are given to hazard reduction, regulatory compliance, operational safety, and financial, contractual, and technical concerns. Final budget planning for direct-funded (project) and indirect-funded ES&H activities are documented in the MYWP and submitted to DOE-ORP for approval.

Modifications to the MYWP approved work scope that meet established thresholds (i.e., cost, schedule, milestone) are subject to CHG or DOE-ORP approval as defined in the Baseline Change Control process (HNF-IP-0842, Vol. VIII, Sec 1.1, *Baseline Change Control*).

The following provides a brief description of the activity-based, life-cycle planning system utilized by CHG to develop MYWP resource planning for field execution.

The TFC life-cycle baseline represented in the MYWP is a product of the development of the technical scope, schedule, and cost baselines. Level 0 and Level 1 logic flow diagrams are developed to define the work activities and interfaces necessary to meet technical, regulatory, and mission requirements while protecting workers, the public, and the environment. Technical Basis Review (TBR) data packages are prepared to resolve the Level 1 activities to a detailed, executable task level, using Activity-Based Cost estimating methodology consistent with the "Hanford Cost Estimating and Scheduling Guide," DOE-RL-97-90. TBR packages document scope, risk-mitigation needs, performance, and deliverable expectations, and resources necessary to complete the work. At the TBR activity level, work management and ES&H management processes are integrated to focus on the necessary elements of work planning combined with safety and environmental protection. This is done to ensure that work is planned and can be executed in a manner that ensures safety and environmental protection while optimizing productivity and efficiency.

In addition to the MYWP, the TFC provides RPP baseline data for inclusion in two annual ES&H Hanford Site DOE summary budget reports listed below:

- The Hanford Site Environmental, Safety and Health Fiscal Year 2001 Budget-Risk Management Summary (DOE/RL-99-28) identifies significant ES&H risks and mitigating actions, and identifies the resources required to support upcoming ES&H planned activities.

- The Hanford Site Environmental, Safety, and Health Fiscal Year 1999/2000 Execution Commitment Summary (DOE/RL99-78) provides end-of-year status of ES&H execution commitments, including actual safety and health expenditures.

These two summary documents are used to redirect resources, if necessary, to ensure that significant ES&H risks are properly managed and funded.

The TBR planning package development (from level 1 logic) is completed by a multi-disciplinary team of technical, operations, management, ES&H, Quality Assurance, customer representatives, and subject matter experts. During the development of these life-cycle planning documents, the team:

- identifies the hazards, and technical, operational, and regulatory impacts associated with the work activities,
- utilizes requirements and control documents such as the S/RID, AB, and implementing procedures and instructions, and
- incorporates the ISMS elements of work scope definition, identification of hazards, control of hazards, work performance, and a continuous improvement feedback loop.

Activities and resources from the TBRs are input to Primavera (P3) cost and scheduling system to prepare the TFC detailed cost and schedule baseline. The completed life-cycle planning documents are reviewed and approved by the affected functions and oversight organizations prior to inclusion in the draft MYWP. This draft MYWP data provides the foundation for resource inclusion in the PPL, and subsequent budget prioritization.

The TFC develops and updates the contractor work breakdown structure (CWBS) and supporting dictionaries (using guidance provided in the MYWP and annual budget submittals), identifies cost account levels, assigns cost account managers, and reviews the cost account plans. In accordance with the WBS directive, the TFC develops and maintains the CWBS, index, dictionaries, and the project responsibility assignment matrix (RAM). The TFC reviews and approves the project RAM and develops the project's technical approach, schedule and cost baselines in alignment with the approved CWBS.

The TFC technical baseline is the set of equipment, facilities, materials, staff qualifications, and enabling documentation needed to start up and complete mission objectives. It consists of a requirements baseline, design baseline, and operational baseline (HNF-SD-WM-SEMP-002, *Systems Engineering Management Plan for the Tank Farm Contractor*, and HNF-1901, *Technical Baseline Summary Description for the Tank Farm Contractor*). The technical baseline includes an analysis of the RPP mission, identification of the functions and requirements necessary to complete this mission, and project design criteria and interface control documents. The Functions and Requirements Document (e.g., Functional Design Criteria, Project Design Criteria, Design Requirements Document, Project Development Specifications, Level 1 and 2 Specification) form the basis for Project Design concept and Conceptual Design report documents and follow-on detailed designs. Project design media forms the basis for scheduled work activities. The *Tank Farm Contractor Engineering Plan* (HNF-1947) outlines the engineering practices and procedures. Subcontracts contain SOWs (RPP-PRO-186, *Preparing a Statement of Work for Services*) that are used to capture work scope and delegate it to subcontractors.

5.4.2 Set Expectations

The MYWP establishes the expectations for accomplishing work, prioritizing tasks, and allocating resources. A hierarchy of mechanisms is used such that each successively lower tier provides an increasing level of detail on "what" work is to be performed and "how" integration occurs (i.e., broad mission objectives are translated into discrete tasks). Expectations are set by establishing performance objectives, including safety performance, whereby cost and schedule considerations can never override safety considerations for the assigned work. The formality of these objectives depends on the scope of work, its complexity, and the hazards associated with the work.

5.4.3 Prioritize Tasks and Allocate Resources

The TFC achieves acceptable programmatic risk (i.e., safety, cost, schedule, and technical performance) through the process of risk assessment, analysis, and risk management. The *Risk Management* procedure (HNF-IP-0842 Vol. IV, Sec 2.6) addresses safety, cost, schedule, and technical performance, providing a consistent basis for evaluating and addressing risk. The Risk Management procedure is used in conjunction with a number of other TFC documents, including *Decision Management* (HNF-IP-0842 Vol. IV, Sec 2.7), *Alternative Generation and Analysis* (Ibid, Sec 3.3), and *Project Work Authorization*.

The risk decision management processes are intended to balance priorities by using risk-based analysis to meet regulatory requirements and control hazards and environmental impacts during performance of work. Programmatic and technical risk management activities are conducted throughout projects and activities. Risk is considered in prioritizing and scheduling work during the integrated planning process (HNF-IP-0842, Vol. X, Sec 3.8, *Integrated Planning Process*) and work package preparation (HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*).

5.4.4 Subcontractor ISMS Flowdown

The following paragraphs describe the specific mechanisms by which CHG ensures flowdown of ISMS and performs oversight of subcontractor performance.

Specific requirements for subcontractors, including safety requirements are documented during the procurement process as specified in *The Material Request/Purchase Requisition/Contract Requisition Process* (RPP-PRO-123), and *Preparing a Statement of Work for Services* (RPP-PRO-186).

Subcontracts are written and managed as 1) purchased goods and services or 2) enterprise company and construction. Subcontracts for purchased goods and services include procured items, engineering services, and other services to augment existing TFC staff. These subcontracts contain standard provisions. Additionally, the subcontracts include the provisions of Special Provisions 5A or 5B, depending upon the magnitude and complexity of the order. Special Provision 5A represent a 100% flowdown of ISMS requirements, while Special Provision 5B represents a less than 100% flowdown based on the work scope being less hazardous.

Enterprise company and construction subcontracts contain standard contract clauses in Section H that require the subcontractor to comply with the TFC ISMS Description. Individual Task Orders to these contracts will also contain either SP-5A or SP-5B as described above.

Regardless of the type of contract issued, each element of work is issued to the subcontractor via a task order, which includes a specific SOW. If determined applicable by the requisitioner and BTR, the task order contains specific safety requirements specified by the TFC.

A BTR is assigned by the requisitioning project, activity, or cost account manager to a contract, task order, work order, or subcontract to act as the day-to-day technical representative. The primary duty of the BTR is to provide technical direction/clarification to the subcontractor to ensure performance of all elements in accordance with the statement of work without placing emphasis on schedule or cost to the detriment of quality, safety, or the environment (HNF-IP-0842, Vol. X, Sec 3.14, *Buyer's Technical Representative Assignment and Duties*). The BTR is responsible for internal coordination of, and interface with, the subcontractor regarding the various technical requirements such as quality assurance, safety, security, environmental, Price-Anderson Amendments Act, and ISMS principles applicable to the performance of the contract pursuant to the TFC implementing procedures. The BTR ensures subcontractor Quality Assurance oversight is provided as required.

The TFC Safety and Environmental organizations provide subcontractor management support to the BTR by 1) communicating requirements, and 2) performing assessments, inspections, and/or surveillances to ensure

compliance (RPP-PRO-076, *Safety Inspections*, HNF-1773, *Environmental Program Description for the Tank Farms Contractor*).

Subcontractors are required to work under the TFC Radiological Protection Program or have their own approved program. The TFC provides radiological planning and oversight. Subcontractor radiological work is performed in accordance with the *Hanford Site Radiological Control Manual* (DOE-RL-96-109).

Each new task is evaluated against the approved AB in accordance with procedure HNF-IP-0842, Vol. IV, Sec 5.4, *Unreviewed Safety Questions*.

5.4.5 Facility/Activity Level

For operational activities, the scope of authorized work is communicated as part of the TFC work control process (HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*), during the plan of the day meetings. Line supervisors and managers ensure activities relating to ES&H issues (e.g., worker safety, environmental compliance monitoring, and safety system operability) are resource-loaded by coordination with ES&H managers. Operations personnel analyze facility and equipment conditions and resources, and initiate actions to ensure activities significant to ES&H are promptly resolved. Safety basis controls such as those specified in the TSRs are monitored through surveillance testing, equipment status control programs, and operator rounds.

At the individual task level, work control processes such as AJHA and Radiological Work Permits may be standing documents used for pre-defined standard work scopes, or may be job-specific. The work control processes use the elements of EWP to ensure face-to-face work planning participation by workers, line management, and the ES&H support personnel. EWP elements are also used to involve the workers in hazard identification. In this way, preparations are identified to 1) reduce the possibility of injury or exposure of the worker and minimize the impact on the public and the environment and 2) to ensure the work scope is properly defined. This process works because of the attention of personnel to each other's safety needs as a result of the ES&H training provided to the TFC workforce.

The entire process of defining and planning the work is improved through the TFC self-assessment and the MAP, which are used to provide feedback on the planning process. The scope of maintenance, operations, and construction work is defined using the TFC work control process (HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*). The hazards are identified during the planning stage using EWP elements and the integrated work planning teams. The rigor or level of work planning required (low, medium, high) is determined by the results of the EWP and AJHA processes. Once work is identified, the work control procedure identifies the integrated work planning and control process to be used to plan the work activity. The required planning elements for conducting the three levels of work planning are graded to the complexity of the work, the hazards encountered in performing the work, and the uncertainty about the work and hazards it entails. Maintenance, operations, and construction work packages are prepared in accordance with the work control process (HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*), and approved by the responsible line manager.

5.5 Core Function 2 - Analyze Hazards

Identifying and analyzing potential hazards and environmental impacts is important to ensuring hazards are adequately controlled and requirements are met. Hazards and environmental impacts are identified as part of baseline development, a process that continues throughout the facility or project life cycle. Work performed as part of the mission is evaluated against the bounding conditions of AB. For the TFC, hazard identification and analysis are defined at the company level, but they are implemented at the facility and activity level.

Applicable Guiding Principles

1. Line Management Responsibility
2. Clear Roles and Responsibilities
3. Competence per Responsibilities

Analysis of facility hazards, environmental impacts, and job hazards is an essential process for ensuring that facility and project operations are conducted in a safe and environmentally protective manner. Facility hazard analyses provide for the development of facility-specific controls to protect workers, the public and the environment. Job hazard analyses (JHAs) identify hazards and environmental impacts (facility and task specific) to establish effective work controls and provide for safe performance of work. Hazard and environmental impact identification and analysis are performed per RPP-PRO-430, *Safety Analysis Program*, RPP-PRO-452, *NEPA, SEPA, Cultural and Natural Resources*, RPP-PRO-079, *Job Hazard Analysis*, DOE/RL-94-02, *Hanford Emergency Management Plan*, and HNF-IP-0842, Vol. IX, Sec 5.4, *Fire Hazard Analysis Requirements*.

For activities conducted by the TFC, site-specific environmental impact statements, applicable supplemental analyses, and approved site-wide categorical exclusions (RPP-PRO-452, *NEPA, SEPA, Cultural and Natural Resources*) are prepared under the National Environmental Policy Act (NEPA). The NEPA process is concluded and the preferred alternative is selected prior to work scope being flowed down to CHG.

Projects are designed using an iterative process focused on enabling assumptions, risk management, decision management, and alternatives generation analysis. The TFC procedures RPP-PRO-1997, *Construction Program Overview*, RPP-PRO-1998, *Construction Program Pre-Conceptual Activity*, RPP-PRO-1999, *Construction Program Conceptual Phase*, RPP-PRO-2000, *Construction Program Execution Phase*, address construction projects. Procedures RPP-PRO-1621, *ALARA Decision-Making Methods*, and RPP-PRO-1622, *Radiological Design Review Process*, address radiological aspects of new designs. Multidisciplinary design-review teams help identify and resolve design and life cycle issues for their respective disciplines. This activity is coordinated with hazard identification and analyses. Identified hazards are mitigated by design or engineered controls as part of the design process.

The requirement for development, implementation, and maintenance of the primary facility safety basis is contained in RPP-PRO-700, *Safety Analysis and Technical Safety Requirements*.

5.5.1 Identify Hazards

Hazards are identified (RPP-PRO-704, *Hazard and Accident Analysis Process*) to determine the facility hazard category, which, in turn, determines the type of formal safety analysis to be performed. Line management uses characterization of potential hazards for developing facility design and operating features, procedures, controls, scope, and schedule for work performance. Generally, a combination of process (e.g., system) analysis and JHA is employed to identify and characterize hazards. Based on this information, hazards (or safety) analyses are performed as described in the next section.

For specific work activities, line and safety personnel jointly review planned work, identify radioactive and chemical material inventories, identify potential hazards, and develop a facility safety baseline. Workers are made aware of chemical inventories and the proper use of chemicals through the mechanisms described in the *Tank Farm Health and Safety Plan* (HNF-SD-WM-HSP-002), administrative procedures (HNF-IP-0842 Vols. VI, *Environmental*, and IX, *Safety*), and communications from line management. The EJTA is used to assess workplace hazards and provide data to determine appropriate levels of medical monitoring (RPP-PRO-111, *Occupational Medical Qualification and Monitoring*).

The EJTA and AJHA processes used to identify hazards at the activity level are a line management responsibility and include employee involvement and the appropriate participation of other support personnel. Routine work can be accomplished under a standing AJHA. The standing AJHA reminds workers of potential safety hazards and proper actions to mitigate those hazards. The TFC uses numerous other procedure-driven processes that, in aggregate, implement the DOE-ORP direction to identify and analyze nuclear, chemical, and work-place hazards.

5.5.2 Analyze Hazards

Hazard and accident analyses consider hazards, including natural phenomena hazards (NPH), that can initiate and contribute to the uncontrolled release of radioactive or hazardous material, or that may affect the workers, the public, and the environment. The identification, evaluation, and classification of risks associated with the TFC facilities are performed per RPP-PRO-704, *Hazard and Accident Analysis Process*. Radiological and hazardous material inventories, facility processes, and planned operations, in part, determine the facility hazard classification and required hazard baseline documentation. For industrial facilities (e.g., shop, warehouse, laboratory, test facility) a hazard baseline checklist is completed. The hazard baseline checklist ensures that the facility does not inadvertently increase its hazardous material inventory and/or processes to a level where a safety analysis and more rigorous controls are required.

The greatest rigor is applied to nuclear facilities. For nuclear facilities, hazard analyses evaluate hazards associated with the construction, modification, operation, and decontamination and decommissioning (D&D) of the facility. The results of these analyses are documented in Safety Analysis Reports (SARs) (RPP-PRO-430, *Safety Analysis Program*). For Tank Farms, the results are documented in the Final Safety Analysis Report (FSAR) (HNF-SD-WM-SAR-067, *Tank Waste Remediation System Final Safety Analysis Report*), which was approved by DOE-ORP, and is being implemented over a three-year period. The FSAR is used as the technical basis for fire and emergency analyses.

A graded process is used for work planning. Graded principles are applied at the outset of the work planning process by determining the inventories of the material at risk. Using a graded approach to planning the work and using diverse teams of experienced personnel to evaluate the work process and hazards have proven to be extremely valuable. These approaches also support the tenets of EWP and VPP.

The EWP process, which is team based, is used. The size of the EWP team is determined by the complexity and anticipated hazards associated with the work. Workers and line managers plan the work and establish appropriate processes to perform the work. Identification and mitigation of hazards (environment, industrial safety, fire protection, chemicals, criticality and nuclear safety, occupational health, industrial hygiene) associated with the work are accomplished using the AJHA tool, and may be done through a standing AJHA for routine or repetitive work. The AJHA, combined with processes such as VPP and EWP, are used to obtain worker involvement in hazard identification and analysis at the facility and activity levels. This process ensures that 1) work-planning activities reflect actual field conditions and 2) knowledge of the facility and experience of the workers is fully applied. For work involving radioactive and hazardous chemicals, workers, planners, and analysts collectively determine the material inventories used to support decisions related to the type of safety analysis that will be performed and the type of work plans and controls (RPP-PRO-2258, *Chemical Management*).

Radiological hazards are identified and evaluated during the work screening process using the RPP administrative procedures for radiological work planning found in HNF-IP-0842, Vol. VII, Sec 17.1, *ALARA Work Planning*.

Work that is the responsibility of the TFC but performed by subcontractors is managed in a similar manner. Hazards identification and analysis of work performed by subcontractors is managed by the BTR who administers the terms and conditions of the contract (HNF-IP-0842 Vol. X, Sec 3.14, *Buyer's Technical Representative Assignment and Duties*).

5.5.3 Categorize Hazards

After identification of hazards, the initial work categorization effort (e.g., routine, planned effort, or enhanced planned effort) sets the level of management rigor required for planning and authorizing work. At the facility level, the final hazard category is determined as described in RPP-PRO-704, *Hazard and Accident Analysis Process*. The hazard classification is documented in the final SAR or other safety basis documentation. At the activity level, work is categorized based on risk and complexity as defined in the Work Control procedures (HNF-

IP-0842 Vol. V, Sec 7.1, *RPP Work Control*). Work categorization is used when preparing work packages. The hazard and urgency of proceeding with work is specifically considered in work planning. The work prioritization process has bins for addressing a range of hazard priorities, from high-level emergencies to less-pressing outage work.

For work to be accomplished using the work control process, a graded approach is used in determining the categories of work. Work is categorized according to the safety classification of the system, critical operation requirements, required skill of the worker, and the hazards associated with the task as defined in the Work Control procedure. The approach is graded as 1) routine, 2) planning required, or 3) enhanced planning required. Work requests undergo a screening process when submitted to the Radiological Control organization.

For work requiring planning, EWP/AJHA integrated planning teams consider radiological and non-radiological hazards. The teams may raise the required degree of rigor applied to planning or controls based on their review. The teams make the final determination as to the level of radiological work planning required.

Low-Risk Work

For low-risk radiological work, hazard analysis is accomplished during work plan development and Radiation Work Permit preparation in accordance with administrative procedures in HNF-IP-0842, Vol. VII, Sec 7.1, *RPP Work Control*. As necessary, a pre-job walk down or radiological assessment survey may be completed if available data are incomplete or out of date. Appropriate field input is incorporated into the work plan or procedure and an RWP incorporating the necessary radiological controls is written to support the work.

Medium-Risk Work

Hazard analysis is performed for medium-risk radiological work as it is for low-risk radiological work, with the addition of an EWP meeting and preparation of an ALARA Management Worksheet (AMW).

The EWP process is used to plan the work. The ALARA Management Worksheet acts as a checklist and guides the remediation of radiological hazards identified during the development of the AJHA, draft work plan, and RWP.

High-Risk Work

For high-risk radiological work, the actions for low- and medium-risk radiological work are accomplished. In addition, a final review and approval by the ALARA Joint Review Group (JRG) is required.

5.6 Core Function 3 - Develop and Implement Hazard Controls

5.6.1 Identify Standards and Requirements

CHG is responsible for compliance with standards and requirements agreed to the CHG contract with DOE. CHG has developed and implemented the approved S/RID (HNF-SD-MP-S/RID-001, *Tank Waste Remediation System Standards/Requirements Identification Document*) to meet this requirement. The S/RID undergoes periodic review and update to ensure it is maintained and current. The S/RID process (RPP-PRO-265, *Standards/Requirements Identification Document Process*, and HNF-IP-0842 Vol. I, Sec 6.4, *Standards/Requirements Identification Document Process*) governs requirements management.

Applicable Guiding Principles

1. Line Management Responsibility
2. Clear Roles and Responsibilities
3. Competence per Responsibilities
5. Identification of Safety Standards and Requirements
6. Hazard Controls Tailored to Work Being Performed

Requirements are diverse, derived from multiple sources, and captured in many different forms. Requirements are extracted from approved documents issued for action (e.g., contracts, statutes, regulations, applicable DOE Orders, consent agreements, and permits.).

CHG performs work under a procedure-based system that implements the S/RID. Configuration control of S/RID requirements into work procedures is managed by Responsible Functional Area Managers (RFAMs). Facility Experts (FEs) ensure procedure revisions do not affect the implementation of the S/RID. Review and sign-off of procedures ensure traceability between the procedures and the requirements in the S/RID.

The previous TFC prepared an *S/RID Program Implementation Plan* (SPIP) to describe how requirements would be added to the approved S/RID in a timely fashion. The SPIP, which was approved by DOE-RL, is implemented by two procedures. The first was adopted from the previous PHMC's procedure. The other appears in HNF-IP-0842, Vol. I, Sec 6.4, *Standards/Requirements Identification Document Process*, and describes the process used to maintain the S/RID and to assess selected aspects of requirement compliance.

As a prime contractor, CHG must ensure that ES&H requirements affecting its approved work scope are assessed and incorporated as appropriate into the TFC S/RID. The TFC used the process of FE evaluation and RFAM/Interpretive Authority (IA) concurrence to review the requirements that appeared in the PHMC's S/RID and in the Spent Nuclear Fuel (SNF) S/RID, then CHG submitted them to the DOE-ORP for concurrence prior to migration into the TFC S/RID. With the careful review of each requirement, CHG determined that the requirements appearing in the SNF S/RID were not applicable to the TFC work scope (HNF-1901, *Technical Baseline Summary Description for the Tank Farm Contractor*).

ES&H requirements are conveyed to subcontractors through contracts and task order agreements. Specific requirements for subcontractors are established during the procurement process as specified in RPP-PRO-123 (*The Material Request/Purchase Requisition/Contract Requisition Process*) and RPP-PRO-186 (*Preparing a Statement of Work for Services*). When subcontractors are used to perform work activities, the BTR designated to manage subcontractor performance to the contract language monitors compliance to requirements.

5.6.2 Identify and Implement Controls to Prevent/Mitigate Hazards

Controls to prevent/mitigate hazards are identified and implemented at the Company Level, Facility Level and Activity Level.

Company Level and Facility Level

CHG is required to comply with the requirements of applicable federal, state, local laws and regulations (including DOE regulations), and environmental permits and approval in developing and implementing controls, unless relief is granted in writing by the appropriate regulatory agency. The requirements and controls necessary for safe, environmentally sound operations and adequate protection of the workers, the public and the environment are specified in the facility AA. CHG is responsible for ensuring that work complies with the documented AA. For hazards, CHG employs a hierarchy of controls. The order of the hierarchy is design/engineered controls, administrative controls, and personal protective equipment. Optimization, balancing risk and cost, is performed during the design phase.

The AB is an integral piece of the AA. To ensure the safe operation of nuclear facilities and to reduce the potential risk to the public and workers from uncontrolled releases of radioactive material or from unplanned radiation exposure, the FSAR and technical safety requirements are developed and implemented. TSRs are specified in HNF-SD-WM-TSR-006, *Tank Waste Remediation System Technical Safety Requirements*, and implemented via HNF-IP-1266, *Tank Waste Operations Administrative Controls*. The AA is managed and controlled per RPP-PRO-2701, *Authorization Agreement and Authorization Envelope*. The AA broadly defines the AE considering facility hazards.

The AB is updated to incorporate appropriate changes as a result of mission progress or operating changes, facility operating experience or facility modifications (HNF-IP-0842 Vol. IV, Sec 5.10, *Authorization Document Process*, and HNF-IP-0842 Vol. IV, Sec 5.14, *Tier 1 Review of Authorization Basis Documents*). Proposed changes to the facility operation or unplanned operating events are evaluated for impact/coverage by the AB using the USQ process (HNF-IP-0842 Vol. IV, Sec 5.4, *Unreviewed Safety Questions*). For work that impacts facility systems, structures or components, a TFC Design Authority evaluates proposed activities to ensure the changes are covered by the facility technical baseline and the AB document.

Another important element of controls is the development and implementation of appropriate Emergency Management systems and plans for the facility or an individual. The Emergency Management Program uses facility hazards and environmental impact analyses as a technical basis for planning emergency response training, drills, exercises, and emergency procedures are developed to mitigate and control hazards. The extent of emergency planning and preparedness performed directly corresponds to the type and scope of hazards and the environmental impacts present, and the potential consequences of events.

CHG manages the potential for off-site impact of planned/changing operations by comparing changing facility mission and life-cycle conditions against approved facility Emergency Management Hazards Assessment and Emergency Action Levels (EALs). Appropriate EAL changes are made as a result of that review (RPP-PRO-424 *Emergency Preparedness Program*). The hazard assessment review is performed annually, or following a significant change in a facility process.

Activity Level

The procedure-based work control system provides defense-in-depth for work accomplished using the work control process through a hierarchy of analyses and documentation. In development and control of the safety basis, the hazard/safety analysis leads to specific controls that are applied to managing work within acceptable bounds. These include administrative controls specified in HNF-IP-1266, *Tank Farm Operations Administrative Controls*, overall controls, and permits are identified and specified in the AJHA. Personnel are briefed on hazards and controls prior to performing work.

The Environmental group ensures that environmental controls are identified and met by 1) comparing proposed work to permit requirements, 2) screening new work activities for environmental impacts, and 3) evaluating work control procedures and field work practices to monitor compliance (HNF-IP-0842 Vol. VI, *Environmental*). Workers ensure pollution prevention and waste minimization program requirements have been met (TO-100-152, *Perform Waste Generation, Segregation, and Accumulation*).

The Radiological Control organization reviews proposed work activities and confirms the work can be accomplished under the approved *Radiation Protection Program Plan* (HNF-IP-5184). Controls necessary to prevent and/or mitigate radiological exposures or release of radioactive contamination are developed and inserted into the work control document and governing Radiological Work Permit (RWP). Field work practices are monitored for compliance with prescribed controls and limits.

Controls specific to the hazard and risk are developed during the planning process and incorporated into the governing work control documents and permits.

Mechanisms used to manage "floor-level" changes in key processes are described in procedures that address:

1. preparing operating specification documents (HNF-IP-0842 Vol. IV, Sec 4.3, *Operating Specification Documents*),
2. using temporary modifications or bypasses of equipment (Ibid. Sec 4.5),
3. replacing equipment in safety class/safety significant systems (Ibid. Sec 3.11),
4. addressing USQs (HNF-IP-0842 Vol. IV, Sec 5.4, *Unreviewed Safety Questions*), and

5. preparing and using Operations and Maintenance procedures (HNF-IP-0842 Vol. 1, Sec 2.11, *Technical Procedure Control and Use*).

At the activity level, work planning and procedure development are often performed using an EWP "team" approach (Production Control Desk Instruction). Management ensures that the team includes an appropriate mix of worker expertise and safety professional support. The team reviews planned work and develops necessary controls for the work hazards. Field supervisors confirm that designated work controls are included in the work package. The EWP team approach uses a multidisciplinary team to walk-down a proposed work activity, to evaluate the hazards, and to confirm that the controls are in place. Through the AJHA, controls and work instructions are documented for work packages (HNF-IP-0842 Vol. V, Sec 7.1, *RPP Work Control*). The controls are communicated to the work force during the pre-job briefing (Ibid. Sec. 4.1).

Projects use construction work packages and work permits (excavation permits, asbestos work permits, core drilling/tie-in permits, hot work permits, electrical installation permits, electrical service requests, energized electrical work permits, pole contact permits, hazardous work permits, confined space permits, burning permits, Hanford Site oversize/overweight permits, Fire Marshal permits, non-emergency hydrant tie-in permits, Hanford scaffold status tags, radiological work permits, and use of explosives requests) to ensure that identified hazards controls are in place and utilized when performing work (RPP-PRO-2000, *Construction Plan Execution Phase*).

The effectiveness of design, engineered, administrative, and personal protective equipment controls are confirmed through monitoring during work. Medical monitoring is also performed. Prior to work, individuals are evaluated and appropriate medical qualifications and monitoring are initiated based on workplace standards. HEHF ensures that Hanford site workers receive appropriate medical qualification, monitoring and related occupational medical services. This process includes use of the EJTA, which is the primary mechanism used to ensure that personnel have appropriate medical qualifications and medical monitoring based on assigned job functions and hazards. The EJTA, in conjunction with exposure monitoring, provides the primary data input components for occupational health. HEHF effectively supports pre-placement, periodic, return to work, and termination health examinations specified by DOE Order 5480.8A. An EJTA is completed for each employee and the adequacy of hazard controls is assessed when medical monitoring results indicate adverse health consequences to workers.

5.7 Core Function 4 – Perform Work Within Controls

Contract DE-AC06-99RL14047 provides CHG legal authority to plan and conduct work at the Tank Farms. Such work includes construction, operation, maintenance, and modification of facilities. It also includes a broad scope of activities such as studies, planning, engineering, design, research, and environmental sampling. The safety controls for work are derived from laws, regulations, DOE Orders and other standards invoked in the contracts and implemented in the company level procedures.

Applicable Guiding Principles

1. Line Management Responsibility
2. Clear Roles and Responsibilities
3. Competence per Responsibilities
7. Operations Authorization

Operations - CHG operations are conducted in accordance with the company Conduct of Operations Program. Conduct of Operations is implemented using thorough and clear procedures based on identified requirements. The process requires that roles and responsibilities are clearly defined, adequate training is provided, and procedures are followed. Operation controls include controls used during planning to address ESH&QA issues and hazards, and procedural controls used during implementation.

Maintenance - CHG has a comprehensive Conduct of Maintenance Program (see HNF-IP-0842, Vol. V, Sec 7.1, *RPP Work Control*, Sec 7.2, *Post Maintenance Testing*, Sec 7.3, *Preventative Maintenance Program*, and RPP-PRO-069, *Maintenance Management*) to ensure systems are returned to operable status and perform as intended and when needed. The principles of Conduct of Operations, Conduct of Maintenance, the ISMS core functions,

and the VPP key elements provide the foundation for the CHG safety culture and integrate environmental protection and compliance into the work control processes.

Construction - Projects develop a Project Execution Plan (PEP) to integrate project phases and associated work elements and facilitate their execution (RPP-PRO-1997, *Construction Program Overview*, RPP-PRO-1998, *Construction Program Pre-Conceptual Activity*, RPP-PRO-1999, *Construction Program Conceptual Phase Activity*, and RPP-PRO-2000, *Construction Program Execution Phase*). The PEP states how the scope of work and associated project requirements will be met. The PEP contains the following elements: summary need documentation; scope description/design concept; overall execution strategy (organization, roles, responsibilities); procurement and contracting approach; engineering and design; work breakdown structure; performance baseline definition & control; life-cycle cost; cost control; construction risk (identify, quantify, analyze, mitigate); performance measurement, reporting, and forecasting; funding; contingency management; site development/temporary facility evaluation, turnover/acceptance, and startup plan; design reviews; quality assurance; safety; safeguards and security; configuration control; document and records management; procedures/procedure development; and training.

Use of a PEP helps ensure successful execution phase activity is achieved. Field construction project work within tank farms is planned using the TFC work planning procedures and released through the Shift Manager.

The following sections further describe company level implementation, as well as facility and activity level implementation, relative to the areas of confirmation of readiness, operations authorization, and performing work safely.

5.7.1 Confirm Readiness

The TFC has a readiness process (HNF-IP-0842, Vol. 2, Sec 1.2, *Readiness Review Process*, RPP-PRO-055, *Facilities Startup Readiness*) that verifies the readiness of a facility, process or project. The process confirms that hazards to the worker, the public or the environment are identified, mitigated or eliminated; that requirements are met; and that work is ready to be performed safely within controls. The formality and degree to which work is proceduralized and the degree of direct worker supervision at the work task (activity) level is based on the type and magnitude of hazards, the degree to which hazards are known, the strength of the controls selected, the complexity of the work, and the worker's knowledge and qualifications.

The type of review needed is justified in the Startup Notification Report sent to DOE for approval. During conceptual design, decisions are made regarding the safety classification of components and the interfaces with existing systems/facilities/processes. The disruptions or differences made to existing systems/facilities/processes or their interfaces are considered when determining the type of readiness reviews required by DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*. As the project progresses, certifications of work completed are assembled as objective evidence of the quality, and thus the pedigree, of the system. This documentation becomes the framework for establishing that the required actions were taken during the construction and testing phases of the project. This documentation also becomes the basis for the operating procedures developed to safely conduct the necessary operations of the system/facility/process and on which the qualification of the operators will be established. The responsible manager authors a Plan of Action specifying the scope or breadth of the required review and transmits it to DOE for approval. From the Plan of Action, an Implementation Plan is derived specifying the depth of the review based on the Plan of Action's defined scope.

The objective evidence of the readiness review is evaluated through a management assessment conducted by line management responsible for the operation of the system/facility/process. During the assessment, management reviews observations of normal operations, operations with upsets, and documentation of the planning, procedures, and qualifications of those involved in the operations are reviewed during the assessment. Upon completion of the management assessment process, management declares the system/facility/process ready for operations. Then, to validate management's declaration of readiness, a team of people not responsible for the

system/facility/process performs a review of the readiness (either an Operational Readiness Review [ORR] or a Readiness Assessment [RA]). The Contractor ORR is followed by a DOE ORR. The DOE ORR verifies the contractor's validation of readiness, determines the efficacy of the contractor's ability to assess their own readiness, and verifies DOE is ready to manage and oversee the new system/facility/process. The Contractor RA may or may not be followed by a DOE RA. An RA can be anything from a supervisory checklist to a formal process that closely resembles an ORR.

Not all readiness activities require the rigor of a formal verification of readiness. For those systems/facilities/processes being started or restarted that are below the thresholds for conducting an RA, a standard startup review is conducted by management responsible for the system/facility/process prior to start up or restart.

Regardless of complexity, employees undertake work activities with full understanding that they are individually responsible for their own safety and the safety of others involved in or affected by the activity. Employees are qualified through training, qualifications and experience to perform the tasks assigned them. They understand that they are required to follow established procedures or work guidance documents for the work being undertaken. They know that they are to stop work if they determine there are errors in the procedures or conditions that may change the controls needed to safely perform the work. They also actively participate in developing and changing the procedures or work guidance documents. Employees understand that they not only have the right, but the obligation, to stop work if, at any time, they are aware that an unsafe condition exists, an unsafe act is being performed, a non-compliant quality issue has been raised, or there is a concern related to environmental compliance and protection. Every employee is expected to understand the hazards and hazard controls in place before beginning an activity—no matter how complex or simple.

Engineering conducts a USQ screen (HNF-IP-0842 Vol. IV, Sec 5.4, *Unreviewed Safety Questions*) of the information contained in work packages and technical procedures prior to release of the work package to ensure work being performed is bounded by the AB. Operations performs a technical review of the work package to ensure prerequisite conditions are addressed before work begins. Supervisors verify that work package prerequisite conditions are complete and that controls specified in the work package or required by the AJHA are in place before the work activity is initiated. The work supervisor directs the work to be performed per the work instructions and documentation in the work package. Operations Management is responsible for maintaining satisfactory conduct of operations standards by establishing an appropriate set of Operations policies and facilitating Operations personnel compliance through training and management participation in activities (HNF-IP-0842 Vol. II, Sec 4.1.1, *Operations Organization and Administration*).

5.7.2 Operations Authorization

Authorization to conduct operations of a Hazard Category 1 or 2 nuclear facility is granted by DOE in the form of an executed AA. An AA is the mechanism whereby DOE-ORP and CHG jointly clarify and agree to key conditions for conducting work safely and efficiently (CHG 5980). Within the AA is an AE that establishes the limits of safe operations. The AE's safe operation limits are based on documented design limitations, controls, regulatory constraints, and assumptions or commitments that are required and based on identified hazards and environmental impacts associated with Tank Farms facilities and operations. CHG's AE includes:

- **RPP Authorization Basis** (*Tank Waste Remediation System Final Safety Analysis Report*, HNF-SD-WM-SAR-067; *Tank Waste Remediation Technical Safety Requirements*, HNF-SD-WM-TSR-006; and additional documents included in the CHG Authorization Basis Table and List, HNF-IP-0842, Vol. IV, Sec 5.4 [*USQ Process*])
- **RPP Requirements Basis** (*Tank Waste Remediation System Standards/Requirements Identification Document*, HNF-SD-MP-SRID-001)

- **RPP Environmental Permits and National Environmental Policy Act** (U.S. Department of Energy Record of Decision for the Tank Waste Remediation System, Hanford Site, Richland, Washington, 62 Federal Register 8693; Tank Waste Remediation System, Hanford Site, Richland Washington, Final Environmental Impact Statement, DOE/EIS 0189; and RPP Environmental Permits and Related Documentation, HNF-4474)
- **Tank Farm Health and Safety Plan** (HNF-SD-WM-HSP-002)

The TFC AA (CHG 5980) will undergo an annual review simultaneously with the TFC ISMS Description as discussed in Section 6.2, *Annual Review of ISMS Documentation*.

5.7.3 Perform Work Safely

The Conduct of Operations program establishes the requirements, roles, and responsibilities for operational work execution. Work is performed by personnel who are trained and, as necessary, qualified or certified to perform their assigned task. Pre-job briefings are conducted and the work procedures or instructions, results of hazard analysis, and required permits and controls necessary to the job are reviewed with the worker. Work is performed in a disciplined manner with strict adherence to procedures. Similarly, the Conduct of Maintenance program establishes the requirements, roles, responsibilities and process elements necessary for an effective nuclear facility maintenance program.

Line supervision ensures that controls remain in place during work execution. Line managers are experienced personnel who receive the necessary training and qualifications to carry out their assigned duties and responsibilities.

Employee hazard communication training stresses hazard recognition and acceptance of individual roles and responsibilities for worker safety. Employees are also trained on their rights and responsibilities regarding their stop work authority.

Tank Waste Operations senior management operating expectations of all employees include:

- First line supervisors shall frequently observe and participate in field work activities.
- Employees can identify and elevate problems without fear of retribution from their management chain.
- General activities shall be prioritized as follows:
 1. Personnel Safety: Jobs that impact criticality prevention specifications, TSRs, lock and tag, USQs, nuclear safety, ALARA, procedure change authorizations, and personnel restrictions.
 2. Environmental Safety: Jobs that impact effluent control and other concerns related to the environment.
 3. Facility and Equipment Protection: Jobs that impact protection of facilities and operating equipment to ensure the capability for normal operations.
- Operations shall be conducted within the limits of the criticality prevention specifications, TSRs, and applicable permits as defined in the specific procedure or work documents. Personnel shall have a detailed knowledge of the criticality prevention specifications and TSRs that apply to the work assignment, and shall know the response actions.
- Personnel shall be able to recognize equipment in the work area that is criticality prevention specifications-related and TSRs-related.
- Personnel shall take required immediate actions upon discovery of any known or suspected violations of the criticality prevention specifications or TSRs, and shall notify the shift manager.

- Personnel shall apply ALARA principles to any task that presents a personnel risk of any type.
- Procedure compliance is mandatory. Personnel are expected to operate systems in compliance with established operating procedures. When instructions/procedures are inadequate or incorrect for the task assigned, personnel shall stop work and notify their manager. An appropriate review shall be conducted in accordance with the applicable CHG procedure to correct the inadequacy.

Work is performed according to approved work instructions and procedures that are maintained under configuration control. By following work permit procedures that have been developed, reviewed and approved in accordance with established requirements, workers ensure that their work is in compliance with the approved safety basis, requirements basis, and applicable environmental permits. The Engineering function maintains configuration management of the Technical Baseline. Baseline management activities, such as the USQ process, are performed to ensure proposed modifications to the Technical Baseline are properly reviewed and are consistent with requirements and standards. Engineering supports Work Supervisors by preparing or approving proposed Technical Baseline changes and reviewing the field work scope to provide assurance operational activities are also consistent with safety requirements. Operating procedure revisions are implemented and controlled through an established Procedure Change Authorization (PCA) process (HNF-IP-0842 Vol. I, Sec 2.11, *Procedure Development and Maintenance*).

5.8 Core Function 5 – Provide Feedback and Continuous Improvement

As identified in DOE P 450.5, *Line Environment, Safety and Health Oversight*, DOE has established that DOE line oversight and contractor self-assessments together ensure adequate implementation of an ISMS. At a minimum, a credible contractor self-assessment program addresses the following elements:

Applicable Guiding Principles

1. Line Management Responsibility
2. Clear Roles and Responsibilities
3. Competence per Responsibilities

- Performance measures and performance indicators
- Line and independent evaluations
- Compliance with applicable requirements
- Data collection, analysis, and corrective actions
- Continuous feedback and performance improvement.

5.8.1 Collect Feedback Information

CHG has contractual and corporate commitments to continuous improvement in executing the TFC mission. The process of feedback and continuous improvement involves collection of formal and informal feedback, self-identification and implementation of opportunities for improvement, and acting on feedback from self assessment, assessment, oversight, and enforcement activities. Systems are in place to collect and analyze operations and safety performance data to support these efforts as described below. Improvements may be accomplished through resolution of single specific issues, or may involve company level program and process improvements, facility or equipment design changes, or changes to specifications and procedures.

Company, Facility, and Activity Level Formal Internal Feedback Mechanisms

Feedback through an integrated assessment program ensures continuous improvement in the TFC Safety Programs. Feedback and improvement occur on a continuing basis at all stages of work performance and through the self-assessment program implemented by HNF-IP-0842, Vol. XI, Sec 1.1 (*Quality Assurance Program*). Feedback ensures safe performance of work by taking advantage of experience. Personnel, employees, and subcontract employees are encouraged to participate. The TFC has numerous formal processes in place to support

feedback and continuous improvement. These processes function at the company, facility, and activity level. The TFC Action Tracking System (ATS) (HNF-IP-0842, Vol. I, Sec 2.4, *Corrective Action Management*) captures analysis, actions, closure, and verification of actions associated with identified deficiencies. Other processes include:

- Self Assessments (HNF-IP-0842, Vol. XI, Sec 1.1)
- Management Assessments (HNF-IP-0842, Vol. I, Sec 2.10)
- Independent Assessment (HNF-IP-0842, Vol. XI, Sec 1.4)
- Performance Indicators (HNF-IP-0842, Vol. I, Sec 2.5)
- Corrective Action Management System (HNF-IP-0842, Vol. I, Sec 2.4)
- Occurrence Reporting (HNF-IP-0842, Vol. II, Sec 4.6.2)
- Lessons Learned (HNF-IP-0842, Vol. II, Sec 4.6.3)
- Critique Process (HNF-IP-0842, Vol. II, Sec 4.6.4)
- Post Job ALARA Reviews (HNF-IP-0842, Vol. VII, Sec 17.1)
- Post Job Reviews (HNF-IP-0842, Vol. V, Sec 7.1)
- Radiological Problem Reports (RPP-PRO-388)
- Safety Issues Raised by Workers (HNF-IP-0842, Vol. IX, Sec 2.4)
- Price Anderson Amendment Act (PAAA) Issue Screening Reports (HNF-IP-0842, Vol. I, Sec 1.5)
- PAAA Non-Compliance Tracking System Report (HNF-IP-0842, Vol. I, Sec 1.5)
- DOE-ORP Safety Evaluation Reports (RPP-PRO-700)
- Environmental Assessments, Inspections, and Surveillances (HNF-1773, Sec. 7.2)

ISMS program elements are subject to continuous improvement through assessment and feedback processes. Feedback and continuous improvement occurs at each level of work and at every stage in the work process. Feedback and opportunities for continuous improvement are obtained through workforce reviews, management assessments, independent assessments, trend analysis, commitment tracking, causal factor analysis, occurrence reporting, lessons learned, inspections by external agencies, and other sources. An evaluation of the TFC's formal assessment processes will be performed to determine if modification or additional process development is required to document and report the effectiveness of the TFC's ISMS. This evaluation will also address the process for evaluating subcontractor ISMS performance.

5.8.2 Monitor and Measure Performance

10 CFR 830.120, *Quality Assurance Requirements* (The QA Rule), requires that performance be monitored, measured, and evaluated to identify and implement improvement opportunities. Within the context of the ISMS, monitoring, measuring, evaluating, and making decisions for improvement occur at multiple levels.

Performance Indicators

DOE-Headquarters has identified five ISMS complex-wide performance indicators that will be monitored on a DOE-wide basis and reported to DOE:

1. Total Recordable Case Rate
2. Safety Cost Index Per 100 Work Hours
3. Hypothetical Radiation Dose to the Public (PNNL)
4. Reportable Occurrences of Releases to the Environment
5. Average Dose Per Worker Receiving Measurable Dose

The information is collected and analyzed by the TFC. PNNL calculates the hypothetical radiation dose to the public for the Hanford Site.

The TFC publishes a monthly report of performance indicators through the *Performance Indicators Program* (HNF-IP-0842 Vol. I, Sec 2.5), which is designed to meet the objectives of DOE Order 210.1. Annually, senior management establishes goals to achieve the mission in a safe manner (HNF-IP-0842 Vol. IX, Sec 1.1, *Health*

and Safety Program Description). Managers identify suitable safety and operating metrics and leading indicators that address operating experience. Operations are then monitored to measure performance relative to established metrics. ESH&Q and operations information is gathered, analyzed, trended, and disseminated to evaluate performance.

The TFC following performance indicators have been initially established to monitor ISMS implementation beyond the minimum safety performance requirements as discussed in Section 2.5, *ES&H Minimum Performance Requirements*. These are typical indicators used to provide feedback to measure and continuously improve the TFC ISMS and to manage adverse trends before they affect performance.

- Tank Waste Operations - Management Observation Program
- Deficiency Tracking System Events TWO Field Presence – Senior Manager ACES Entries
- TWO Field Presence-Quality – Procedure Problems Found and Corrected
- Radiological Assessment Observations
- Conduct of Radiological Operations Observations
- Reportable Skin/Clothing Contamination
- Reportable Loss of Control of Radioactive Material/Spread of Contamination
- Radiological Category 10C Occurrence Rate
- RPP Dose by Calendar Year
- RPP Radiation Dose for CY 1999 by Organization
- Occurrence Reports – Pareto of Root Causes
- Pareto of Root Causes
- Hour Categorization Time Limit Delinquencies
- OSR, TSR, LCO Related Events
- Skin and Clothing Contaminations – Attribute #A
- Violation of Procedure – Attribute #B
- Procedure Problem – Attribute #C
- Management Problem – Attribute #E
- Lockout/Tagout Errors – Attribute #F
- Work Control Errors – Attribute #G
- Maintenance – Suspensions FY98/99/00, To Date and Last 2 Months
- Occurrence Reports FY99/00 TD Rate of Occurrences
- Tank Waste Operations Training Delinquencies
- Environmental Permitting Status
- Tank Waste Operations Training No-Shows
- Accidents by Cause – October 1997 through February 2000
- Lost Workday Case Rate – FY 1999 and 2000 Comparison
- Safety Performance
- Employee Concerns/Ethics
- Safety Issue Backlog
- Saltwell Pumping Volume Totals – Interim Stabilization Total Volumes 8/1/99 to Date
- Saltwell Pumping Totals – Overall Pumping Percentages 8/1/99 to Date
- Characterization Sampling Events

As the TFC ISMS matures, these performance indicators will be subjected to feedback and continuous improvement. THE TFC will continue to team with DOE-ORP during the performance indicator evolution. Stability, continuous improvement, and increased productivity will be the ultimate measure of the TFC's performance.

5.8.3 Identify and Implement Improvement Opportunities

The TFC ISMS includes an oversight component to measure the adequacy of work performed in complying with applicable requirements. Applicable laws and regulations (e.g., the S/RID) are integrated with the mechanisms used to identify and implement improvement opportunities.

The oversight component enhances the TFC policy that individual employees are responsible and held accountable for working safely. Workers follow procedures and, with management participation, establish an overall awareness of safety in the workplace. To further enhance safe work practices, workers are trained to recognize hazardous conditions in the workplace, work to procedures, and report unsafe work conditions to their supervisors. ESH&Q professionals inspect the workplace and work practices and are available to workers for consultation on employee concerns. Individual employees provide real-time oversight of work. In top-level policy statements, CHG formalizes the role and value of employee safety awareness and safe behavior. Numerous recognition mechanisms are used with awards given on a defined frequency (e.g., monthly, annually, and on-the-spot) and to a range of employee categories (e.g., hourly, exempt, and teams).

DOE has established quality assurance requirements for assessing the adequacy of work performed. The TFC collects operating information and evaluates performance by analyzing the results of assessments, occurrence reports, investigations and critiques (RPP-PRO-058, *Critique Process*, and HNF-IP-0842 Vol. II, Sec 4.6.2, *Occurrence Reporting and Processing of Operations Information*) and developing lessons learned that are incorporated into suitable corrective action plans. The *Quality Assurance Program Description for the Tank Farm Contractor* (RPP-MP-600) requires the TFC managers to assess the performance and effectiveness of their areas of responsibility. The required assessments must be performed to allow the managers to determine if the integrated management system and processes are directed effectively to achieving work objectives. Direct customer feedback must be included in the process and performance assessment.

Specific program audits, surveillance, and self-assessments (e.g., crane safety, electrical safety, hazard communication) are conducted to comprehensively review implementation and effectiveness of safety programs (HNF-IP-0842 Vol. IX, Sec 1.1, *Health and Safety Program Description*). Evaluation of compliance with environmental, safety, health, and quality requirements is conducted with scheduled and unannounced field surveys of the workplace. Environmental surveillance of tank farm facilities are conducted by Environmental personnel to verify compliance with requirements, to assess corrective actions taken in response to previous deficiencies, and to ensure that equipment necessary for environmental monitoring is maintained by Operations and Maintenance organizations. Frequency of environmental surveillance is based on the potential environmental hazard at a facility and past performance.

Internal assessment activities are included in the *Management Assessment Program* (MAP) (HNF-IP-0842 Vol. I, Sec 2.10) to assess performance and support continuous improvement. The MAP tasks managers with assessing management processes, including the principles of ISMS. The MAP provides a management structure that integrates observation, assessment, corrective action, and lessons-learned activities for the purpose of achieving appropriate continuous improvement. Six different assessment levels comprise the MAP 1) business management assessment; 2) internal requirement bases assessments (S/RID); 3) management observation program; 4) worker assessments; 5) external assessments; and 6) independent assessments. These activities are used and initiated by senior managers who evaluate corporate mission and ES&H performance as the first step in determining areas where "management" assessments would be beneficial.

Internal independent quality program audits and assessments are specified in the *Quality Assurance Program Description for the Tank Farm Contractor* (RPP-MP-600). These audits are performed to 1) evaluate management effectiveness, adequacy of work performance, item/product/process quality and product effectiveness, and 2) promote improvement in projects and operations. The audits provide company and facility management with accurate, timely, and consistent feedback to measure Project effectiveness in accomplishing its mission, while assuring adherence to applicable conduct of operations, environmental, safety, health, and quality

assurance requirements as well as achieving continuous quality program improvement. Information on project performance is obtained through performance-based assessments, compliance-based audits, surveillances, observations and project monitoring.

Results of management assessments and other feedback mechanisms (e.g., external assessments, housekeeping inspections, and performance indicator reviews) are evaluated for trends and root causes (RPP-PRO-052, *Corrective Action Management*, and HNF-IP-0842, Vol. 1, Sec 2.4, *Corrective Action Management*). The outcomes of these analyses are incorporated into appropriate action plans and entered into ATS, as appropriate. The information is used by various safety awareness forums (e.g., President's Zero Accident Council, VPP Steering Committee) to develop and implement, where suitable, institutional corrective actions. CHG takes seriously the management of safety issues resulting from these various processes, particularly those issues raised by workers.

The Occurrence Reporting Program complies with DOE Order 232.1. Line managers provide guidance and direction for personnel training to be able to 1) identify events, 2) respond to detected operating events, 3) make the necessary notifications and categorization of events, 4) document and analyze the event, 5) disseminate the results of this analysis within the company and into the DOE-wide system, and 6) enter occurrence report action plans into the ATS. The corrective action management process defines management expectations, deficiency identification and evaluation, root-cause analysis, corrective actions, corrective-action closure, field verification and field validation, deficiency closure, tracking and trending, records management, and training (RPP-PRO-052, *Corrective Action Management*).

The Lessons Learned Program (HNF-IP-0842 Vol. II, Sec 4.6.3, *Lessons Learned Procedure*) utilizes designated personnel to oversee and facilitate operation of the Lessons Learned Program. These personnel generate lessons learned using feedback from the participants' operating experience, reviews, pre-job/post-job briefings, critiques, and management assessments. Site-specific lessons learned, including successes, are factored into future activities including work planning and execution. In addition, lessons learned from relevant operating events across the DOE complex are incorporated into the program. A lessons learned coordinator provides necessary guidance, monitors the process, reviews analysis of operating experience data, and selects the mechanism for disseminating the information.

A radiological assessment and corrective action process ensure continuous improvement at the TFC facilities. Feedback and improvement occur on a continuing basis at all stages of work planning and performance and through the Radiological Self Assessment Program. The Routine Radiological Surveillance Program (DOE/RL-96-109, *Hanford Site Radiological Control Manual*) also provides radiological data that are analyzed to identify areas of potential improvement. Radiological Performance Reports are compiled and issued to measure the overall performance of the TFC Radiological Control Program and to motivate improvement. The TFC ALARA Committee involves workers and management in the development of annual ALARA goals, which are based on the projected work scope and expected radiological improvements.

At the activity levels, management presence in the field and observation of daily activities are the most effective means of feedback. Pre-job meetings, post-job reviews, and Management Observation Programs (MOPs) provide the opportunity for face-to-face two-way communication between the worker and the First Line Manager. Radiological feedback is received from the workers, FWS and Radiological Control First Line Managers review of completed work packages, post-job ALARA reviews, and review of documented Lessons Learned. Lessons Learned from other facilities are also reviewed for applicability.

An informal process entitled the Facility Excellence Program (FEP) utilizes employee involvement methods (e.g., teams of non-managers, workers, supervisors, safety and environmental professionals) to inspect facilities for ES&H performance, conduct of operations, maintenance and housekeeping.

5.8.4 Oversight and Enforcement

The TFC uses the results of external oversight reviews and regulatory inspections and investigations to ensure compliance and identify opportunities for improvement.

The DOE-ORP Facility Representative Program, within DOE-ORP Tank Farm Oversight Division, is responsible for inspecting ongoing and completed work to ensure compliance with federal, state, local, and contractual requirements. It also supports line management assessment of contractor readiness to start-up new operations.

The DOE Headquarters, Office of Environmental Management and Office of Environment, Safety, and Health, perform regular assessments of specific programs at DOE sites that have significant amounts of special nuclear material or other hazards; perform follow-up reviews to ensure corrective actions are effective; perform complex-wide studies of issues and generic weaknesses in specific programs; and develop and validate reports that identify finding and issues, and opportunities for improvement.

The U. S. Environmental Protection Agency (EPA), Region X, provides oversight of air emissions, and Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Agency (TSCA) units on the Hanford site. EPA participates in joint inspections of tank farm facilities with the Washington State Department of Ecology (Ecology) and the Washington State Department of Health (WDOH).

Ecology is the lead agency for non-radioactive air emissions and RCRA units on the Hanford site. Ecology performs routine inspections to ensure that the regulated facilities are in compliance with the applicable regulations.

WDOH is the lead agency for radioactive air emissions. WDOH performs routine inspections to ensure that the regulated facilities are in compliance with the applicable regulations.

CHG responds to findings and concerns, and analyzes these findings and concerns for improvement opportunities.

6 Institutionalizing ISMS

In writing the implementation plan for Defense Nuclear Facilities Safety Board Recommendation 95-2 (Safety Management), DOE sought to institutionalize an ISMS that would facilitate accomplishment of the various site missions, while ensuring adequate protection of the workers, the public and the environment. In order to institutionalize the ISMS, DOE Acquisition Regulations were enacted which established the system requirements. The TFC has met the DOE objective and established contract requirements for institutionalizing the ISMS for work and operations conducted at tank farms. As described in this document, and illustrated in Figure 4 below, work planning and execution are being accomplished with company, facility, and activity level integration of the core functions, guiding principles, and programs and mechanisms of the TFC ISMS. CHG is fully committed to continuous improvement of the ISMS while accomplishing the TFC mission. The following paragraphs summarize past implementation and verification activities, outline ongoing activities to assess the system's effective implementation, and describe the approach for future updates to this document.

Institutionalizing ISMS is accomplished through a safety culture exhibited by the TFC personnel. A strong safety culture supports a healthy ISMS, which in turn strengthens the safety culture. Thus, continuous improvement is achieved. Each matures through training, mentoring, changing and monitoring processes, programs, procedures, and work practices as they are improved. ISMS is also a continuation of initiatives such as:

- Application of a graded approach to work prioritization
- Quality work execution
- Deficiency management
- Enhanced Work Planning
- Voluntary Protection Program
- The TFC's Safety Councils and participation in the Fluor Hanford President's Zero Accident Council
- Facility Excellence Program
- Radiological Control Step Improvement Plan

6.1 Verification Activities

Successful activities supporting ISMS implementation completed to-date demonstrate a history of strong Tank Farms personnel commitment to the mission and safety:

1. ISMS Demonstration Pilot Projects (DPP) – July 1997
2. ISMS Gap Analysis – February 1998
3. ISMS Phase I Verification – October 1998
4. DOE-ORP Line Management Readiness Review – May 1999
5. ISMS Phase II Verification – August 1999

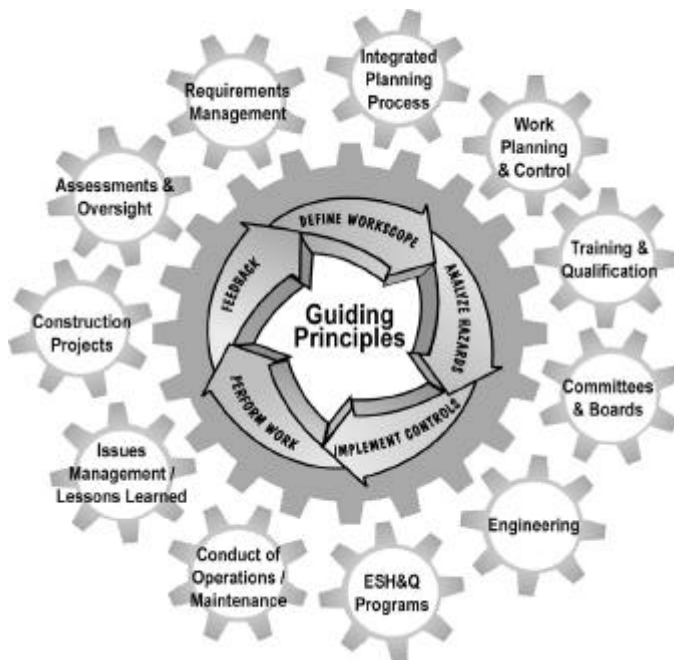


Figure 4 Work Planning and Execution Accomplished with Company, Facility, and Activity Level Integration

6.1.1 Phase I Verification

The Tank Farm ISMS Phase I verification provided improvement recommendations in three areas: 1) provide clearer definition of roles and responsibilities and better requirements basis documentation, 2) formalize a comprehensive and integrated feedback program, and 3) integrate hazard control and work planning processes to ensure hazards analyses are performed appropriately prior to work commencing. The following discusses the improvements made in these areas.

- In response to the first recommendation, the function, scope, and expectations of TWRS Safety for oversight of Nuclear Safety were documented, formalized roles and responsibilities for Nuclear Safety personnel were developed and implemented, and procedures were developed for the implementation of the safety AB (HAZ 1-3 and HAZ 1-4). Other procedure changes provided clearer roles and responsibilities for Project Directors and other TWRS project personnel (MGO 1-2, MGO 1-3, and MGO 1-4).

Major revisions to RPP-MP-003, *Integrated Environment, Health and Safety Management System Description for the Tank Farm Contractor*, were completed to 1) define and incorporate the seven guiding principles of ISMS into institutional and facility level work processes (MGO 3-3), 2) better provide expectations regarding the development of key requirements basis documents (MGO 3-4), 3) incorporate textual and diagrammatic material to enhance ISMS Description (VI 1-3), and 4) incorporate ISMS Plan structure into the corporate management structure (VI 1-4).

- Activities associated with the second recommendation developed, documented, and institutionalized a comprehensive and integrated feedback process to ensure issue identification, corrective action development, and corrective action implementation (MGO 2-3 and MGO 2-4). The involvement of pertinent decision-makers in the issue resolution process was institutionalized (MGO 2-5). A S/RID program implementation plan, HNF-3714, *Tank Waste Remediation System Standards/Requirements Identification Document Program Implementation Plan*, was also developed and implemented to remedy discovered adverse impacts to the feedback process (MGO 2-6) associated with S/RID configuration management.
- In response to the third recommendation, work and pre-job procedures were rewritten to ensure in-process changes are evaluated and job safety analysis modifications due to these changes are communicated to the personnel performing the work (ED 1-2 and ED 1-3). Qualification and training standards were documented for Project Management/Project Engineering personnel managing construction work (EM 1-3). Environmental awareness training requirements for personnel conducting AJHA were established (ENV 1-3). The work control and pre-job briefing procedures were modified to formalize the ISMS 5 Core Functions to provide a graded approach for hazard control (MT 1-3 and MT 1-4).

Areas identified for improvement resulted in a Corrective Action Plan (FDH-9860475 R1). The Corrective Action Plan was entered into the ATS and independent review was performed prior to closeout. There are no Tank Farms ISMS Phase I verification actions open.

6.1.2 Phase II Verification

The Tank Farm ISMS Phase II verification identified opportunities for improvement in six areas: 1) AJHA process, 2) RPP work control planning and integration process, 3) subcontractor management, 4) assessments and

critiques, 5) line management presence and accountability, and 6) feedback. The following provides a summary of the major improvement activities initially established.

- Full implementation of the AJHA process was found not to be complete. The TFC work control procedure, HNF-IP-0842, Vol. V, Sec 7.1, (*RPP Work Control*) was updated and the AJHA completed to ensure implementation of the desired job hazard analysis process (HAZ 1-8).
- During work control planning, the definitions and methodology for determining and assigning low-, medium-, and high-risk work were discovered to be inadequate. In response, safety and industrial hygiene and environmental screening criteria were developed for determining high-, medium-, and low-risk work and non-radiological screening criteria are being integrated into the TFC work control procedure (HAZ 1-9, WP 1-6, HAZ 1-10, WP 1-8).
- The Subcontractor Safety Oversight procedure was identified as not being fully implemented. HNF-IP-0842, Vol. IX, Sec 2.3 (*Subcontractor Safety Oversight*) was evaluated and reconciled to ensure safe work plans are developed and reviewed by subcontractor personnel as required (HAZ 1-11).
- In the area of assessments and critiques, a requirement for more emphasis on critique processes and findings was identified. The critique procedure, HNF-IP-0842, Vol. II, Sec 4.6.4 (*Critique Process*), was revised to implement an emphasized critique process and to provide a means of developing a better understanding of the issues surrounding the activity being critiqued (MGO 2-4).
- Line management activity and involvement at the work level was discovered to be less than adequate. The presence and accountability of Level I, II, and III managers was determined to be needed to ensure the work force understands the importance of procedure compliance and execution of hazard controls. A letter from senior management was distributed to reinforce the expectations concerning self-assessment and management involvement. Performance indicators were also developed to document management field presence and observations (MGO 2-3, OPN, 1-2, WP 1-7).
- A lack of accessible indicators showing safety performance and benefits from teamwork planning was identified, which did not allow workers to connect their individual efforts with successful accomplishments. Performance indicators are being developed to track the benefits from teamwork planning and the EWP improvement process (OPN 1-3).

Areas identified for improvement resulted in a Corrective Action Plan (LMHC-9956335A R1). The Corrective Action Plan was entered into the ATS. When each area was evaluated, additional opportunities for improvement were identified, which will be provided to DOE-ORP upon closure. Each area will undergo independent review prior to closure to ensure effective implementation.

6.2 Annual Review of ISMS Documentation

The TFC's ISMS documentation required by Contract DE-AC06-99RL14047 (e.g., ISMS Description, AA) has been placed in configuration control. The ISMS Description (RPP-MP-003), Authorization Agreement (CHG 5980), EH&S minimum performance requirements (Contract), and performance measures/indicators will be reviewed annually in response to the budget execution process. The ISMS documentation will be revised as necessary to reflect significant improvements, changes or requirements.

Identified in DOE G 450.4-1A, Chapter IV, aids have been developed to assist with conducting annual reviews of ISMS documentation. The following continuing core expectation (CCE) statements establishes the minimum to review the ISMS against, which will also be used to review the TFC ISMS Description:

- CCE – 1: *The annual updates in response to budget execution process are completed. DOE direction is provided as part of the annual program and budget execution guidance including direction regarding major mission changes. The contractor updates the safety performance objectives, performance measures, and commitments so that they reflect and promote continual improvement and address major mission changes, as required. The ISMS Description is updated and submitted for approval as scheduled by the contracting officer.*
- CCE – 2: *System effectiveness, measured as described in the contractor's ISMS Description, is satisfactory. Safety performance objective, performance measures, and commitments are met or exceeded, and that they are revised as appropriate for the next year.*
- CCE – 3: *Work activities reflect effective implementation of the functions of ISMS. Work is defined. Hazards are identified. Controls are developed and implemented. Work is properly authorized. Work is accomplished within controls. Appropriate worker involvement is a priority.*
- CCE – 4: *Contractor and DOE implementing mechanisms continue to support the principles of ISMS. Promulgated roles and responsibilities are clear. Line management is responsible for safety. Required competence is commensurate with responsibilities and the technical and safety system knowledge of managers and staff continues to improve.*
- CCE – 5: *Contractor and DOE budget processes continue to ensure that priorities are balanced. Budget development and change control processes ensure that safety is balanced with production. Facility procedures ensure that production is balanced with safety.*
- CCE – 6: *An effective feedback and improvement process, using progressively more demanding criteria, is functioning at each level of the organization from the worker and individual activities through the facilities and the site, including the ISMS feedback and improvement process used by and within DOE. The expectations of DOE 450.5 are in place. Issues management is effective so that issues are identified, evaluated and closed. Issues identified in the ISMS verifications and previous ISMS annual update reviews are effectively addressed.*
- CCE – 7: *The process for effecting changes to the standards and requirements identified in the Contract per DEAR List A and List B revisions is being utilized and is effective. Authorization Agreements and Authorization Envelope documentation is maintained current. Mission changes are reflected. Changes in agreed upon standards are included. An effective, dynamic process is apparent.*
- CCE – 8: *Performance objectives and criteria (POC) guidance for Contractor and DOE assessments focus the reviews on the adequate implementation of the functions and the principles of Integrated Safety Management in a manner consistent with the approved ISMS Description. Assessments utilize the POCs. Reports reflect the status of ISMS implementation.*
- CCE – 9: *Relevant records reflect an improving ISMS. Records include routine DOE and Contractor self-assessment reports, independent and focused assessment reports, incident investigations, occurrence reports, PAAA enforcement action reports, and other relevant documentation that provide evidence as to the status of implementation, integration, and effectiveness of the Integrated Safety Management System. Configuration control of contractor ISMS Description is in place and effective.*

- CCE – 10: *DOE ISMS procedures and mechanisms are in place to ensure that work is formally and appropriately authorized and performed safely. DOE line managers are involved in the review of safety issues and concerns and have an active role in authorizing and approving work and operations.*
- CCE – 11: *DOE ISMS procedures and mechanisms are in place to ensure that hazards are analyzed, controls are developed, and that feedback and improvement programs are in place and effective. DOE line managers are using these processes effectively, consistent with FEM FRAM and DOE FRAM requirements.*

As identified in Section 3, *River Protection Project Overview*, Tank Farms personnel have managed significant contractor change (i.e., transition from major subcontractor status to prime contractor status; contract divestiture). The ISMS structure established by DOE and implemented within Tank Farms did transcend contractor changeover as evident by the successful and safe acceleration of major hazardous projects. The record of success is due to, and belongs to, the TFC personnel.

It is with all personnel that the cultivation of safety will continue. CHG commits to providing the support to enable that to happen.

Appendix A Acronyms

AA	Authorization Agreement
AB	Authorization Basis
AE	Authorization Envelope
ALARA	As Low as Reasonably Achievable
AJHA	Automated Job Hazards Analysis
AMW	ALARA Management Worksheet
ATS	Action Tracking System
BHI	Bechtel Hanford, Inc.
BNFL	British Nuclear Fuels Limited, Inc.
BTR	Buyer's Technical Representative
CCE	Continuing Core Expectation
CDR	Conceptual Design Report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFRs	Code of Federal Regulations
CHG	CH2M HILL Hanford Group, Inc.
CMS	Chemical Management System
CWBS	Contractor Work Breakdown Structure
D&D	Decontamination & Decommissioning
DEAR	Department of Energy Acquisition Regulation
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
DOE-ORP	Department of Energy - Office of River Protection
DOE-RL	Department of Energy – Richland Operations Office
DPP	Demonstration Pilot Projects
DTS	Deficiency Tracking System
EAL	Emergency Action Level
ECP	Employee Concerns Program
EIS	Environmental Impact Statement
EJTA	Employee Job Task Analysis
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPC	Employee Concerns Program
ERC	Employee Recognition Council
ES&H	Environment, Safety and Health
ESH&Q	Environment, Safety, Health and Quality
ESP	Employee Suggestion Program
EWP	Enhanced Work Planning

FDC	Functional Design Criteria
FE	Facility Expert
FEP	Facility Excellence Program
FGEAB	Flammable Gas Equipment Advisory Board
FH	Fluor Hanford, Inc.
FSAR	Final Safety Analysis Report
FWS	Field Work Supervisor
FY	Fiscal Year
HASP	Health and Safety Plan
HECB	Hanford Electrical Codes Board
HEHF	Hanford Environmental Health Foundation
HM/HW	Hazardous Materials/Hazardous Waste
HNF-IP	Hanford - Internal Procedure
HNF-MD	Hanford - Management Directive
HNF-MP	Hanford - Management Plan
HNF-PRO	Hanford – Procedure
HNF-SD	Hanford - Supporting Document
HSRCM	Hanford Site Radiological Control Manual
IA	Interpretive Authority
IPPT	Integrated Product/Process Teams
ISMS	Integrated Safety Management System
ISO 14001	International Standards Organization for Environmental Management System
JCS	Job Control System
JHA	Job Hazards Analysis
JRG	Joint Review Group
JTRG	Joint Test Review Group
LMHC	Lockheed Martin Hanford Corporation
MAP	Management Assessment Program
MOP	Management Observation Program
MYWP	Multi-Year Work Plan
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NPH	Natural Phenomena Hazards
NTS	Non-Compliance Tracking System
OE	Operations Engineer
ORP	Office of River Protection
ORPS	Occurrence Reporting and Processing System

ORR	Operational Readiness Review
P3	Primavera
PAAA	Price Anderson Amendment Act
PCA	Procedure Change Authorization
PDC	Project Design Criteria
PEP	Project Execution Plan
PTH	Protection Technology Hanford
PHMC	Project Hanford Management Contract
PIO	Project Integration Office
PNNL	Pacific Northwest National Laboratories
POC	Performance Objectives and Criteria
PPL	Project Priority List
PRC	Plant Review Committee
QA	Quality Assurance
RA	Readiness Assessment
RAM	Responsibilities Assignment Matrix
RFAM	Responsible Functional Area Managers
RCRA	Resource Conservation and Recovery Act
RPP	River Protection Project
RWP	Radiological Work Permit
SAR	Safety Analysis Report
SEMP/SEIP	Systems Engineering Management Implementation Plan
SIMON	Standard work Instruction for Maintenance Operations
SM	Shift Manager
SNF	Spent Nuclear Fuel
SOW	Statement of Work
SIIP	S/RID Program Implementation Plan
S/RID	Standards / Requirements Identification Document
SSTA	Shift Senior Technical Advisor
TPA	Tri-Party Agreement
TBD	Technical Baseline Document
TBR	Technical Basis Review
TFC	Tank Farm Contractor
TSCA	Toxic Substance Control Agency
TSR	Technical Safety Requirement
TWO	Tank Waste Operations
USQ	Unreviewed Safety Question

VPP	Voluntary Protection Program
WBS	Work Breakdown Structure
WDOH	Washington State Department of Health

APPENDIX B
Crosswalk for Tank Farm Contractor ISMS Key Activities/Programs to Key Mechanisms and ISMS
Description Section

ACTIVITY/PROGRAM	KEY MECHANISMS	SECTION
Accountability	HNF-IP-0842 Vol. X, Sec 4.4, <i>Group Performance Appraisal Process</i> HNF-IP-0842 Vol. X, Sec 4.5, <i>Employee Recognition and Fee Sharing Plan</i> HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i> RPP-PRO-033, <i>Employee Discipline</i> RPP-PRO-050, <i>Managing Employee Performance</i>	5.2, Guiding Principle 2 - Clear Roles and Responsibilities
Action Tracking System (ATS)	See Deficiency Tracking System (DTS)	
Annual Budget Submittal	RPP-MD-100, <i>Annual Budget Submittal</i> RPP-MD-23, <i>Multi-year Work Plan (MYWP) Scheduling</i>	5.4.3, Prioritize Tasks and Allocate Resources
Authorization Agreement (AA)	RPP-PRO-2701, <i>Authorization Agreement and Authorization Envelope</i> CHG-5980, <i>Authorization Agreement</i>	2.1, ISMS Business Levels 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.4.4, Subcontractor ISMS Flowdown 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.2, Operations Authorization
Authorization Basis (AB)	HNF-IP-0842 Vol. IV, Sec 5.10, <i>Authorization Basis Document Process</i> HNF-IP-0842 Vol. IV, Sec 5.14, <i>Tier 1 Review of Authorization Basis Documents</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.4.1, Translate Mission into Work 5.4.4, Subcontractor ISMS Flowdown 5.5, Core Function 2 - Analyze Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.2, Operations Authorization

ACTIVITY/PROGRAM	KEY MECHANISMS	SECTION
Automated Job Hazards Analysis (AJHA)	RPP-PRO-079, <i>Job Hazard Analysis</i> HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i> HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i> HNF-IP-0842 Vol. IX, Sec 2.3, <i>Subcontractor Safety Oversight</i>	2.4, Integration of Other Safety Initiatives 5.4.6, Facility/Activity Level 5.5.1, Identify Hazards 5.5.2, Analyze Hazards 5.5.3, Categorize Hazards
Baseline Change Control	HNF-IP-0842 Vol. VIII, Sec 1.1, <i>Baseline Change Control</i>	4.6, Configuration Management 5.4.1, Translate Mission into Work
Chemical Management	RPP-PRO-2258, <i>Chemical Management</i> HNF-IP-0842, Vol. VI, Sec 4.2, <i>Receiving, Storing, and Handling Chemicals</i>	4.11, Chemical Management 5.5.1, Identify Hazards 5.5.2, Analyze Hazards
Committees and Boards	HNF-IP-0842, Vol. I, Sec 3, <i>Charters</i>	5.1, Guiding Principle 1 - , Line Management Responsibility for Safety
Conduct of Maintenance	HNF-IP-MIP, <i>Tank Waste Remediation System Maintenance Implementation Plan</i> RPP-PRO-069, <i>Maintenance Management</i>	4.3, Conduct of Maintenance 5.2, Guiding Principle 2 – Clear Roles and Responsibilities 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities 5.4, Core Function 1 – Define Workscope Guiding Principle 4 – Balanced Priorities 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization
Conduct of Operations	HNF-IP-0842, Vol. II, Sec 4, <i>Conduct of Operations</i> HNF-IP-0842, Vol. II, Sec 4.1.1, <i>Operations Organization and Administration</i>	4.2, Conduct of Operations 5.2, Guiding Principle 2 – Clear Roles and Responsibilities 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities 5.4, Core Function 1 – Define Workscope Guiding Principle 4 – Balanced Priorities 5.7.3, Perform Work Safely
Configuration Management	HNF-1900, <i>Configuration Management Plan for the Tank Farm Contractor</i> HNF-IP-0842, Vol. VIII, Sec 1.1, <i>Baseline Change Control</i>	4.6, Configuration Management 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed

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Construction Projects	RPP-PRO-1997, <i>Construction Program</i> RPP-PRO-1998, <i>Construction Program Pre-Construction Activity</i> RPP-PRO-1999, <i>Construction Program Conceptual Phase Activity</i> RPP-PRO-2000, <i>Construction Program Execution Phase</i>	4.4, Construction 5.2, Guiding Principle 2 – Clear Roles and Responsibilities 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities 5.4, Core Function 1 – Define Workscope Guiding Principle 4 – Balanced Priorities 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization
Contract	DE-AC06-99RL14047, CHG and ORP Contract	5.4, Core Function 1 – Define the Scope of Work Guiding Principle 4 – Balanced Priorities 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8, Core Function 5 – Provide Feedback and Continuous Improvement 6.0, Institutionalizing ISMS
Corrective Action Management Issues Management	RPP-PRO-052, <i>Corrective Action Management</i> HNF-IP-0842 Vol. I, Sec 2.4, <i>Corrective Action Management</i>	4.19, Issues Management 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.8.1, Collect Feedback Information 5.8.2, Identify and Implement Improvement Opportunities
Criticality Safety	HNF-SD-WM-TSR-006, <i>Tank Waste Remediation System Technical Safety Requirements</i> HNF-SD-WM-SAR-067, <i>Tank Waste Remediation System Final Safety Analysis Report</i> HNF-IP-1266, <i>Tank Farm Operations Administrative Controls</i> HNF-IP-0842 Vol. IV, Sec 6, <i>Nuclear Safety</i>	4.13, Criticality Safety 4.24, Nuclear Safety 5.7.3, Perform Work Safely 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed

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Critiques	HNF-IP-0842, Vol. II, Sec 4.6.4, <i>Critique Process</i>	5.8.2, Identify and Implement Improvement Opportunities
Deficiency Tracking System (DTS), aka Action Tracking System	RPP-PRO-653, <i>Deficiency Tracking System</i>	5.8.2, Identify and Implement Improvement Opportunities
Emergency Management	RPP-PRO-424, <i>Emergency Preparedness Program</i> HNF-IP-0842, Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i> DOE-0223, <i>Emergency Plan Implementing Procedures</i> DOE/RL-94-02, <i>Hanford Emergency Management Plan</i>	3.3, Hanford Interfaces 4.16, Emergency Management 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.5, Core Function 2 – Analyze the Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Emergency Response Procedures	RPP-PRO-424, <i>Emergency Preparedness Program</i> DOE-0223, <i>Emergency Plan Implementing Procedures</i> DOE/RL-94-02, <i>Hanford Emergency Management Plan</i>	3.3, Hanford Interfaces 4.16, Emergency Management 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Employee Concerns Program	RPP-PRO-410, <i>Employee Concerns Resolution</i> HNF-IP-0842 Vol. I, Sec 2.10, <i>Management Assessment Program</i> HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.8.1, Collect Feedback Information 5.8.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Employee Job Task Analysis (EJTA)	RPP-PRO-111, <i>Occupational Medical Qualification and Monitoring</i> HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i> HNF-IP-0842 Vol. IX, Sec 2.3, <i>Subcontractor Safety Oversight</i>	5.5.1, Identify Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Employee Recognition Program	RPP-PRO-029, <i>Employee Service Recognition Award Program</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety
Employee Suggestion Program	HNF-IP-0842 Vol. X, Sec 4.9, <i>Employee Suggestion Program</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety

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Engineering	HNF-1947, <i>Tank Farm Contractor Engineering Plan</i> HNF-IP-0842, Vol IV, <i>Engineering</i>	4.5, Engineering 5.5, Core Function 2 – Analyze the Hazards 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed
Enhanced Work Planning (EWP)	HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i> Production Control Desk Instruction	2.4, Integration of Other Safety Initiatives 5.4.6, Facility/Activity Level 6.0, Institutionalizing ISMS
Environmental Management	HNF-1773, <i>Environmental Program Description for the Tank Farm Contractor</i> HNF-IP-0842 Vol. VI, <i>Environmental</i> HNF-IP-0842 Vol. VI, Sec 2.1, <i>Scheduling, Planning, and Conducting Surveillance/Compliance Inspections</i> HNF-IP-0842 Vol. VI, Sec 2.3, <i>Planning, Preparing for, Conducting, and Reporting Functional Assessments</i> RPP-PRO-452, <i>NEPA, SEPA, Cultural and Natural Resources</i>	2.4, Integration of Other Safety Initiatives 4.7, Environmental Management 5.4.1, Translate Mission into Work 5.5, Core Function 2 – Analyze the Hazards 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8.3, Oversight and Enforcement
Facility Excellence Program (FEP)	Facility Excellence Program	5.8.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Fire Protection Program (Hazard Analysis/Permits/ Assessments)	RPP-PRO-340, <i>Fire Protection Program Overview</i> RPP-PRO-341, <i>Fire Protection Policy</i> HNF-IP-0842, Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i>	3.3, Hanford Interfaces 4.9, Fire Protection 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.8.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Functional Design Criteria (FDC)/Technical Baseline Document (TBD)	HNF-SD-WM-SEMP-002, <i>Systems Engineering Management Plan for the Tank Farm Contractor</i> HNF-3384, <i>Waste Feed Delivery Program Systems Engineering Implementation Plan</i>	4.5, Engineering 5.6.1, Identify Standards and Requirements

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Hazards Identification/Analysis	<p>RPP-PRO-704, <i>Hazard and Accident Analysis Process</i></p> <p>HNF-SD-WM-SAR-067, <i>Tank Waste Remediation System Final Safety Analysis Report</i></p> <p>HNF-SD-WM-HSP-002, <i>Tank Farm Health and Safety Plan</i></p> <p>HNF-IP-0842 Vol. IV, Sec 5.4, <i>Unreviewed Safety Questions</i></p> <p>HNF-IP-0842 Vol. I, Sec 1.2, <i>Readiness Review Process</i></p> <p>HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i></p> <p>HNF-IP-0842 Vol. IX, Sec 4.1, <i>Hazard Communication Program</i></p> <p>DOE/RL-94-02, <i>Hanford Emergency Management Plan</i></p>	5.5, Core Function 2 – Analyze Hazards
Health & Safety Plan (HASP)	<p>HNF-SD-WM-HSP-002, <i>Tank Farm Health and Safety Plan</i></p> <p>RPP-MP-003, <i>Integrated Environment, Safety and Health Management System Plan</i></p>	<p>5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities</p> <p>5.5.1, Identify Hazards</p> <p>5.7.2, Operations Authorization</p>
Independent Oversight and Trending	<p>HNF-IP-0842 Vol. XI, Sec 1.4, <i>RPP Independent Assessment Program</i></p> <p>HNF-IP-0842 Vol. I, Sec 1.5, <i>Price Anderson Amendments Act Program Plan</i></p> <p>HNF-IP-0842 Vol. I, Sec 2.4, <i>Corrective Action Management</i></p>	<p>4.21, Independent Oversight and Trending</p> <p>5.8, Core Function 5 – Provide Feedback and Continuous Improvement</p>

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Industrial Safety Occupational Health and Industrial Hygiene	HNF-SD-WM-HSP-002, <i>Tank Farm Health and Safety Plan</i> HNF-IP-0842, Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i> RPP-PRO-111, <i>Occupational Medical Qualification and Monitoring</i>	4.8, Industrial Safety 4.14, Occupational Health and Industrial Hygiene 5.3, Guiding Principle 3 - , Competence Commensurate with Responsibility 5.4.1, Translate Mission into Work 5.5, Core Function 2 – Analyze the Hazards 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8.3, Oversight and Enforcement
Integrated Work Planning	HNF-IP-0842, Vol. X, Sec 3.8, <i>Integrated Planning Process</i>	4.26, Work Planning and Control 5.4.1, Translate Mission into Work
Interface Control	HNF-IP-0842, Vol. IV, Sec 2.8, <i>Interface Control</i> HNF-4500, <i>Tank Farm System Interface Summary</i>	3.3 Hanford Interfaces
Job Control System (JCS)	HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i> Job Control System Rel. 4.3	5.5.3, Categorize Hazards 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8.1, Collect Feedback Information
Job Site Walkdowns	HNF-IP-0842, Vol. IV, Sec 3.13, <i>Performing Walkdowns</i> HNF-IP-0842, Vol. IX, Sec 2.3, <i>Subcontractor Safety Oversight</i>	5.5.3, Categorize Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Lessons Learned	RPP-PRO-067, <i>Managing Lessons Learned</i> HNF-IP-0842 Vol. I, Sec 2.10, <i>Management Assessment Program</i> HNF-IP-0842 Vol. II, Sec 4.6.3, <i>Lessons Learned Procedure</i>	4.20, Lessons Learned Program 5.8.1, Collect Feedback Information

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Management Assessment	HNF-IP-0842, Vol. I, Sec 2.10, <i>Management Assessment Program</i>	4.22, Self-Assessments 5.4.6, Facility/Activity Level 5.8.2, Identify and Implement Improvement Opportunities
Multi-Year Work Plan	RPP-MD-023, <i>Multi-Year Work Plan (MYWP) Scheduling</i> RPP-PRO-522, <i>Multi-Year Work Planning</i> HNF-IP-0842, Vol. X, Sec 3.8, <i>Integrated Planning Process</i>	5.4.1, Translate Mission into Work
Nuclear Safety	HNF-SD-WM-TSR-006, <i>Tank Waste Remediation System Technical Safety Requirements</i> HNF-SD-WM-SAR-067, <i>Tank Waste Remediation System Final Safety Analysis Report</i> HNF-IP-1266, <i>Tank Farm Operations Administrative Controls</i> HNF-IP-0842 Vol. IV, Sec 6, <i>Nuclear Safety</i>	4.13, Criticality Safety 4.24, Nuclear Safety 5.7.3, Perform Work Safely 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed
Occurrence Reporting (ORPS)	HNF-IP-0842 Vol. II, Sec 4.6.2, <i>Occurrence Reporting and Processing of Operations Information</i> Reports on Site Intranet	4.19, Issues Management 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.8.1, Collect Feedback Information
Packaging and Transportation	RPP-PRO-154, <i>Responsibilities and Procedures for All Hazardous Material Shipments</i> RPP-PRO-156, <i>Non-Radioactive Hazardous Materials/Hazardous Waste (HM/HW) Shipments</i> RPP-PRO-157, <i>Radioactive Material/Waste Shipments</i> RPP-PRO-166, <i>Transportation Safety Training Requirements</i>	4.23, Packaging and Transportation 5.6, Core Function 3 - Develop and Implement Hazard Controls Guiding Principle 5 – Identification of Safety Standards and Requirements Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization
Performance Indicators	HNF-IP-0842 Vol. I, Sec 2.5, <i>Performance Indicators Program</i> HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i>	5.8.1, Collect Feedback Information 5.8.2, Identify and Implement Improvement Opportunities

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Pollution Prevention/Waste Minimization	DOE/RL-91-31, <i>Hanford Site Waste Minimization and Pollution Prevention Awareness Program Plan</i> HNF-IP-0842 Vol. VI, <i>Environmental</i> TO-100-152, <i>Perform Waste Generation, Segregation, and Accumulation</i>	1.2, Purpose 4.7, Environmental Management 4.12, Waste management 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Post-Job Reviews	HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i> RPP-PRO-079, <i>Job Hazard Analysis</i>	2.4, Integration of Other Safety Initiatives 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.8.2, Identify and Implement Improvement Opportunities
Pre-Job Briefings	RPP-PRO-079, <i>Job Hazard Analysis</i> HNF-IP-0842 Vol. V, Sec 4.1, <i>Pre-Job Briefing</i> HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i> AJHA User Help	5.5.3, Categorize Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.3, Perform Work Safely 5.8.2, Identify and Implement Improvement Opportunities
Procedure Control	HNF-IP-0842 Vol. I, Sec 2.1, <i>Procedure Development and Maintenance</i> HNF-IP-0842 Vol. I, Sec 2.11, <i>Technical Procedure Control and Use</i> HNF-IP-0842 Vol. IV, Sec 4.3, <i>Operating Specification Documents</i> RPP-MD-033, <i>Transition of FDH Procedures, Plans, Policies, and Management Directives to RPP</i>	3.1 River Protection Project 4.0 TFC Company Level Programs 4.1 Requirements Management 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Programmatic Environmental Impact Statements (EISs)	DOE/EIS-0113, <i>Final Environmental Impact Statement, Disposal of Hanford Defense Hi-Level, Transuranic and Tank Waste</i> DOE/EIS-0189, <i>Final Environmental Impact Statement for the Tank Waste Remediation System, Hanford Site, Washington</i> RPP-PRO-452, <i>NEPA, SEPA, Cultural and Natural Resources</i>	5.5, Core Function 2 - Analyze Hazards 5.7.2, Operations Authorization
Project Design Criteria (PDC)/Conceptual Design Report (CDR)	HNF-SD-WM-SEMP-002, <i>Systems Engineering Management Plan for the Tank Farm Contractor</i>	5.6.1, Identify Standards and Requirements

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Project Execution Plan	RPP-6017, <i>Draft Project Execution Plan for the Tank Farm Contractor</i>	4.4, Construction 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization
Project Technical Baseline	HNF-SD-WM-SEMP-002, <i>System Systems Engineering Plan for the Tank Farm Contractor</i>	4.5, Engineering 5.4.1, Translate Mission into Work 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.3, Perform Work Safely
Qualification Cards	RPP-MP-011, <i>Sitewide Qualification and Training Plan</i> RPP-PRO-111, <i>Occupational Medical Qualification and Monitoring</i> HNF-IP-0842 Vol. III, Sec 10, <i>RPP Training Program Descriptions</i>	5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities
Quality Assurance	10 CFR 830.120, <i>Quality Assurance Requirements</i> RPP-MP-600, <i>Quality Assurance Program Description for the Tank Farm Contractor</i> HNF-IP-0842 Vol. XI, Sec 1.1, <i>Quality Assurance Program Plan</i>	4.14, Quality Assurance 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
Radiological Controls	10 CFR 835, <i>Occupational Radiation Protection</i> DOE/RL-96-109, <i>Hanford Site Radiological Control Manual</i> HNF-IP-5184, <i>RPP Radiation Protection Program Plan</i> HNF-IP-0842 Vol. VII, <i>Radiological Control</i>	4.10, Radiological Control 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities 5.4.4, Subcontractor ISMS Flowdown 5.4.6, Facility/Activity Level 5.5.2, Analyze Hazards 5.5.3, Categorize Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.8.2, Identify and Implement Improvement Opportunities

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Readiness Verification	<p>RPP-PRO-055, <i>Facility Start-Up Readiness</i></p> <p>RPP-PRO-286, <i>Test Control</i></p> <p>HNF-IP-0842 Vol. I, Sec 1.2, <i>Readiness Review Process</i></p> <p>HNF-IP-0842 Vol. IV, Sec 3.12, <i>Acceptance of Structures, Systems, and Components for Beneficial Use</i></p>	<p>5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization</p> <p>5.7.1, Confirm Readiness</p>
Requirements Management	<p>HNF-SD-WP-S/RID-001, <i>Tank Waste Remediation System Standards/Requirements Identification Document</i></p> <p>RPP-PRO-265, <i>Standards/Requirements Identification Document Process</i></p> <p>HNF-IP-0842 Vol. I, Sec 6.4, <i>Standards/Requirements Identification Document Process</i></p>	<p>4.1, Requirements Management</p> <p>5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities</p> <p>5.4.1, Translate Mission into Work</p> <p>5.6.1, Identify Standards and Requirements</p>
Risk-based Prioritization	HNF-IP-0842 Vol. IV, Sec 2.6, <i>Risk Management</i>	5.4.3, Prioritize Tasks and Allocate Resources
Risk Management	<p>HNF-IP-0842 Vol. IV, Sec 2.6, <i>Risk Management</i></p> <p>HNF-IP-0842 Vol. IV, Sec 2.7, <i>Decision Management</i></p> <p>HNF-IP-0842 Vol. IV, Sec 3.3, <i>Alternative Generation and Analysis</i></p> <p>HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i></p> <p>HNF-IP-0842 Vol. X, Sec 3.8, <i>Integrated Planning Process</i></p>	<p>4.5, Engineering</p> <p>5.4.3, Prioritize Tasks and Allocate Resources</p> <p>5.5, Core Function 2 - Analyze Hazards</p>
Safeguards and Security	HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i>	<p>4.18, Safeguards and Security</p> <p>5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization</p>
Safety Analyses (FSAR)	<p>RPP-PRO-430, <i>Safety Analysis Program</i></p> <p>RPP-PRO-700, <i>Safety Analysis and Technical Safety Requirements</i></p> <p>HNF-SD-WM-SAR-067, <i>Tank Waste Remediation System Final Safety Analysis Report</i></p>	<p>5.5.2, Analyze Hazards</p> <p>5.7.1, Operations Authorization</p>

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Safety Meetings	HNF-IP-0842 Vol. IX, Sec 1.1, <i>Health and Safety Program Description</i> HNF-IP-0842 Vol. IX, Sec 2.3, <i>Subcontractor Safety Oversight</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety
Schedules	HNF-IP-0842 Vol. I, Sec 2.6, <i>Scheduling</i> HNF-IP-0842 Vol. I, Sec 3.26, <i>RPP Integrated Schedule Control Working Group Charter</i> HNF-IP-0842 Vol. IV, Sec 2.7, <i>Decision Management</i> HNF-IP-0842 Vol. X, Sec 3.8, <i>Integrated Planning Process</i>	5.4.1, Translate Mission into Work 5.4.3, Prioritize Tasks and Allocate Resources
Self-Assessments	HNF-IP-0842 Vol. I, Sec 2.10, <i>Management Assessment Program</i>	4.22, Self-Assessments 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
SIMON	Software	Appendix D
Standards/Requirements Identification Document (S/RID)	HNF-SD-WP-S/RID-001, <i>Tank Waste Remediation System Standards/Requirements Identification Document</i> RPP-PRO-265, <i>Standards/Requirements Identification Document Process</i> HNF-IP-0842 Vol. I, Sec 6.4, <i>Standards/Requirements Identification Document Process</i>	4.1, Requirements Management 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities 5.4.1, Translate Mission into Work 5.6.1, Identify Standards and Requirements
Stop Work Authority	RPP-PRO-3468, <i>Stop Work Responsibility</i>	5.1.2, Tank Farms Field Activities 5.2, Guiding Principle 2 – Clear Roles and Responsibilities
Subcontractor ISMS Flowdown	HNF-IP-0842 Vol. IX, Sec 2.3, <i>Subcontractor Safety Oversight</i> HNF-IP-0842 Vol. X, Sec 3.14, <i>Buyer's Technical Representative Assignment and Duties</i> RPP-PRO-123, <i>The Material Request/Purchase Requisition/Contract Requisition Process</i> RPP-PRO-186, <i>Preparing a Statement of Work for Services</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.3, Guiding Principle 3 – Competence Commensurate with Responsibility 5.4.1, Translate Mission into Work 5.4.4, Subcontractor ISMS Flowdown 5.6.1, Identify Standards and Requirements

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Systems Engineering Management/ Implementation Plans (SEMP/SEIP)	HNF-SD-WM-SEMP-002, <i>Systems Engineering Management Plan for the Tank Farm Contractor</i>	4.6, Configuration Management 5.6.1, Identify Standards and Requirements
Technical Basis Review (TBR)	RPP-MD-014, <i>Integrated Planning Process and Configuration Control</i> RPP-PRO-700, <i>Safety Analysis and Technical Safety Requirements</i> HNF-IP-0842 Vol. IV, Sec 2.6, <i>Risk Management</i> HNF-IP-0842 Vol. IV, Sec 2.7, <i>Decision Management</i> HNF-IP-0842 Vol. X, Sec 3.8, <i>Integrated Planning Process</i>	4.5, Engineering 5.4.1, Translate Mission into Work
Technical Safety Requirements (TSRs)	RPP-PRO-700, <i>Safety Analysis and Technical Safety Requirements</i> HNF-SD-WM-TSR-006, <i>Tank Waste Remediation System Technical Safety Requirements</i>	4.13, Criticality Safety 4.24, Nuclear Safety 5.4.6, Facility/Activity Level 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.2, Operations Authorization 5.7.3, Perform Work Safely
Training and Qualification	HNF-IP-1184, <i>Training Requirements</i> RPP-MP-011, <i>Sitewide Qualification and Training Plan</i> RPP-PRO-021, <i>Employment and Personnel Placement</i> HNF-IP-0842 Vol. II, Sec 2.1, <i>Proficiency Requirements</i> HNF-IP-0842 Vol. III, Sec 1.1, <i>RPP Training Purpose and Functions</i> HNF-IP-0842 Vol. III, Sec 9.2, <i>DOE Standards Implementation – Training Implementation Matrix</i> HNF-IP-0842 Vol. III, Sec 10, <i>RPP Training Program Descriptions</i> HNF-IP-0842 Vol. VII, Sec 2.4, <i>Access Control Entry System Roles Guidance</i>	4.17 Training and Qualification 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities

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Unreviewed Safety Question (USQ)	HNF-IP-0842 Vol. IV, Sec 5.4, <i>Unreviewed Safety Questions</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.3, Guiding Principle 3 – Competence Commensurate with Responsibilities 5.4.5, Facility/Activity Level 5.5.2, Analyze Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.2, Operations Authorization 5.7.3, Perform Work Safely
Waste Management	HNF-IP-0842 Vol. VI, <i>Environmental TO-100-152, Perform Waste Generation, Segregation, and Accumulation</i>	4.12, Waste Management
Work Breakdown Structure (WBS)	RPP-PRO-518, <i>Work Breakdown Structure, Index, and Dictionary</i> HNF-IP-0842 Vol. X, Sec 3.9, <i>Work Breakdown Structure and Code of Accounts</i>	5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.4.3, Prioritize Tasks and Allocate Resources
Work Categorization	HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i>	5.5.3, Categorize Hazards
Work Control	HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i>	4.26, Work Planning and Control 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.4.5, Facility/Activity Level 5.5.3, Categorize Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8.1, Collect Feedback Information
Work Packages	HNF-IP-0842 Vol. IV, Sec 4.5, <i>Equipment Temporary Modifications and Bypasses</i> HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i>	5.4.6, Facility/Activity Level 5.5.3, Categorize Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7.1, Confirm Readiness 5.8.2, Identify and Implement Improvement Opportunities

ACTIVITY/PROGRAM	KEY MECHANISMS	SECTION
Work Permits	RPP-PRO-079, <i>Job Hazard Analysis</i> HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i>	5.4.6, Facility/Activity Level 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards
Work Planning	RPP-PRO-079, <i>Job Hazard Analysis</i> HNF-IP-0842 Vol. V, Sec 7.1, <i>RPP Work Control</i> HNF-IP-0842 Vol. V, Sec 7.3, <i>Preventive Maintenance Program</i> HNF-IP-0842, Vol. X, Sec 3.8, <i>Integrated Planning Process</i>	4.26, Work Planning and Control 5.1, Guiding Principle 1 – Line Management Responsibility for Safety 5.2, Guiding Principle 2 – Clear Roles and Responsibilities 5.4.1, Translate Mission into Work 5.4.4, Subcontractor ISMS Flowdown 5.4.6, Facility/Activity Level 5.5.2, Analyze Hazards 5.5.3, Categorize Hazards 5.6.2, Identify and Implement Controls to Prevent/Mitigate Hazards 5.7, Core Function 4 – Perform Work Within Controls Guiding Principle 7 – Operations Authorization 5.8.2, Identify and Implement Improvement Opportunities 6.0, Institutionalizing ISMS

APPENDIX C

**Crosswalk Between the ISMS Description,
the Department of Energy Acquisition Regulation (DEAR) Clauses 970.5204-2, 970.5204-78, and 970.5204-86,
and the DOE Policies 450.4, 450.5, and 450.6**

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
Department of Energy Acquisition Regulation (DEAR) Clause 970.5204-2 Integration of Environment, Safety and Health into Work Planning and Execution	
(b).... the contractor shall perform work safely, in a manner that ensures adequate protection for employees, the public, and the environment, and shall be accountable for the safe performance of work. The contractor shall exercise a degree of care commensurate with the work and the associated hazards. The contractor shall ensure that management of environment, safety and health functions and activities becomes an integral but visible part of the contractor's work planning and execution processes. The contractor shall, in the performance of work, ensure that:	RPP-MP-003, Rev. 1, <i>Integrated Environment, Safety and Health Management System Description for the Tank Farm Contractor</i>
<ul style="list-style-type: none"> Line management is responsible for the protection of employees, the public, and the environment. Line management includes those contractor and subcontractor employees managing or supervising employees performing work. 	Section 2.2, ISMS Guiding Principles Section 5.1, Line Management Responsibility for Safety Section 5.4.4, Subcontractor ISMS Flowdown
<ul style="list-style-type: none"> Clear and unambiguous lines of authority and responsibility for ensuring ES&H are established and maintained at all organizational levels. 	Section 2.2, ISMS Guiding Principles Section 5.2, Clear Roles and Responsibilities
Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.	Section 2.2, ISMS Guiding Principles Section 5.3, Competence Commensurate with Responsibilities
4 Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.	Section 2.2, ISMS Guiding Principles Section 5.4, Core Function 1 - Define the Scope of Work/Guiding Principle 4 – Balanced Priorities
5 Before work is performed, the associated hazards are evaluated and an agreed-upon set of ES&H standards and requirements are established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences	Section 2.2, ISMS Guiding Principles Section 5.5, Core Function 2 – Analyze Hazards Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
<p>6 Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.</p>	<p>Section 2.2, ISMS Guiding Principles Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed</p>
<p>7 The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed-upon by DOE and the contractor. These agreed-upon conditions and requirements are requirements of the contract and binding upon the contractor. The extent of documentation and level of authority for agreement shall be tailored to the complexity and hazards associated with the work and shall be established in a Safety Management System.</p>	<p>Section 2.2, ISMS Guiding Principles Section 5.7, Core Function 4 – Perform Work Within Controls/ Guiding Principle 7 – Operations Authorization</p>
<p>(c) The contractor shall manage and perform work in accordance with a documented Safety Management System that meets the aforementioned conditions at a minimum. Documentation of the System shall describe how the contractor will:</p> <ul style="list-style-type: none"> • Define the scope of work; • Identify and analyze hazards associated with the work; • Develop and implement hazard controls; • Perform work within controls; and <p>Provide feedback on adequacy of controls and continue to improve safety management.</p>	<p>Section 2.3, ISMS Core Functions Section 5.4, Core Function 1 - Define the Scope of Work/Guiding Principle 4 – Balanced Priorities Section 5.5, Core Function 2 – Analyze Hazards Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed Section 5.7, Core Function 4 – Perform Work Within Controls/ Guiding Principle 7 – Operations Authorization Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement</p>
<p>(d) The System shall describe how the contractor will establish, document, and implement safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance while maintaining the integrity of the System. The System shall also describe how the contractor will measure system effectiveness.</p>	<p>Section 5.4.1, Translate Mission Into Work Section 5.8.1, Collect Feedback Information Section 5.8.2, Identify and Implement Improvement Opportunities</p>

RPP-MP-003, Rev. 1

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
<p>(e) The contractor shall submit to the contracting officer documentation of its System for review and approval. Dates for submittal, discussions, and revisions to the System will be established by the contracting officer. Guidance on the preparation, content, review, and approval of the System will be provided by the contracting officer. On an annual basis, the contractor shall review and update, for DOE approval, its safety performance objectives, performance measures, and commitments consistent with and in response to DOE's program and budget execution guidance and direction. Resources shall be identified and allocated to meet the safety objectives and performance commitments as well as maintain the integrity of the entire System. Accordingly, the System shall be integrated with the contractor's business process for work planning, budgeting, authorization, execution, and change control.</p>	<p>Section 5.4.1, Translate Mission Into Work Section 5.8.1, Collect Feedback Information Section 5.8.2, Identify and Implement Improvement Opportunities Section 6.1, Institutionalizing ISMS Appendix D, Tank Farm ISMS Institutionalization</p>
<p>(f) The contractor shall comply with, and assist the Department of Energy in complying with, ES&H requirements of all applicable laws and regulations, and applicable directives identified in the contract clause on laws, regulations, and DOE directives. The contractor shall cooperate with Federal and non-Federal agencies having jurisdiction over ES&H matters under the contract.</p>	<p>Section 3.0, River Protection Project Overview Section 4.1, Requirements Management Section 5.6.1, Identify Standards and Requirements</p>
<p>(g) The contractor shall promptly evaluate and resolve any noncompliance with applicable ES&H requirements and the System. If the contractor fails to provide resolution or if, at any time, the contractor's acts or failure to act causes substantial harm or an imminent danger to the environment or health and safety of employees or the public, the contracting officer may issue an order stopping work in whole or in part. Any stop work order issued by a contracting officer under this clause (or issued by the contractor to a subcontractor in accordance with paragraph (i) of this clause) shall be without prejudice to any other legal or contractual rights of the Government. In the event that the contracting officer issues a stop work order, an order authorizing the resumption of the work may be issued at the discretion of the contracting officer. The contractor shall not be entitled to an extension of time or additional fee or damages by reason of, or in conjunction with, any work stoppage ordered in accordance with this clause.</p>	<p>Section 4.1, Requirements Management Section 4.19, Issues Management Section 4.21, Independent Oversight and Trending Section 4.22, Self Assessments Section 4.25, Employee Concern Program Section 5.6.1, Identify Standards and Requirements Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement</p>
<p>(h) The contractor is responsible for compliance with the ES&H requirements applicable to this contract regardless of the performer of the work.</p>	<p>Section 5.4.4, Subcontractor ISMS Flowdown Section 5.6.1, Identify Standards and Requirements</p>

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
(i) The contractor shall include a clause substantially the same as this clause in subcontracts involving complex or hazardous work on site at a DOE-owned or –leased facility. Such subcontracts shall provide for the right to stop work under the conditions described above in paragraph (g) of this clause. Depending on the complexity and hazards associated with the work, the contractor may require that the subcontractor submit a Safety Management System for the contractor's review and approval.	Section 5.4.1, Translate Mission into Work Section 5.4.4, Subcontractor ISMS Flowdown
Department of Energy Acquisition Regulation (DEAR) Clause 970.5204-78 Laws, Regulations, and DOE Directives	
(c) Environmental, safety, and health (ES&H) requirements appropriate for work conducted under this contract may be determined by a DOE approved process to evaluate the work and the associated hazards and identify an appropriately tailored set of standards, practices, and controls, such as a tailoring process included in a DOE approved Safety Management System implemented under 48 CFR (DEAR) 970.5204-2. When such a process is used, the set of tailored (ES&H) requirements, as approved by DOE pursuant to the process, shall be incorporated into List B as contract requirements with full force and effect. These requirements shall supersede, in whole or in part, the contractual environmental, safety, and health requirements previously made applicable to the contract by List B. If the tailored set of requirements identifies an alternative requirement varying from an ES&H requirement of an applicable law or regulation, the contractor shall request an exemption or other appropriate regulatory relief specified in the regulation.	Section 4.1, Requirements Management Section 5.6.1, Identify Standards and Requirements
Department of Energy Acquisition Regulation (DEAR) Clause 970.5204-86 Conditional Payment of Fee, Profit, Or Incentives	
(a) Minimum requirements for Environment, Safety & Health (ES&H) Program. The Contractor shall develop, obtain DOE approval of, and implement a Safety Management System in accordance with the provisions of the clause entitled, ``Integration of Environment, Safety and Health into Work Planning and Execution," if included in the contract, or as otherwise agreed to with the Contracting Officer. The minimal performance requirements of the system will be set forth in the approved Safety Management System, or similar document...	Section 1.1, Background Section 1.2, Purpose Section 2.5, ES&H Minimum Performance Requirements Section 6.0, Institutionalizing ISMS Appendix D – Tank Farms ISMS Institutionalization
Department of Energy Safety Management System Policy (DOE P 450.4)	
<i>Component 1: Objective of Integrated Safety Management.</i> The Department and Contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment.	RPP-MP-003, Rev. 1, Integrated Environment, Safety, and Health Management System Description for the Tank Farm Contractor

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
<i>Component 2: Guiding Principles for Integrated Safety Management.</i> The guiding principles are the fundamental policies that guide Department and contractor actions, from development of safety directives to the performance of work.	Section 2.2, ISMS Guiding Principles
8 <u>Line Management Responsibility for Safety.</u> Line management is directly responsible for the protection of the public, the workers, and the environment. As a complement to line management, the Department's Office of Environment, Safety and Health provides safety policy, enforcement, and independent oversight functions.	Section 2.2, ISMS Guiding Principles Section 5.1, Line Management Responsibility for Safety Section 5.4.4, Subcontractor ISMS Flowdown
9 <u>Clear Roles and Responsibilities.</u> Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors.	Section 2.2, ISMS Guiding Principles Section 5.2, Clear Roles and Responsibilities
10 <u>Competence Commensurate with Responsibilities.</u> Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities	Section 2.2, ISMS Guiding Principles Section 5.3, Competence Commensurate with Responsibilities
11 <u>Balanced Priorities.</u> Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed.	Section 2.2, ISMS Guiding Principles Section 5.4, Core Function 1 - Define the Scope of Work/ Guiding Principle 4 – Balanced Priorities
12 <u>Identification of Safety Standards and Requirements.</u> Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.	Section 2.2, ISMS Guiding Principles Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed
13 <u>Hazard Controls Tailored to Work Being Performed.</u> Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards	Section 2.2, ISMS Guiding Principles Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed
14 <u>Operations Authorization.</u> The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.	Section 2.2, ISMS Guiding Principles Section 5.7, Core Function 4 – Perform Work Within Controls/ Guiding Principle 7 – Operations Authorization
<i>Component 3: Core Functions for Integrated Safety Management.</i> Five core safety management functions provide the necessary structure for any work activity that could potentially affect the public, the workers, and the environment. These functions are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and the hazards involved.	Section 2.3, ISMS Core Functions
15 <u>Define the Scope of Work.</u> Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources	Section 5.4, Core Function 1 - Define the Scope of Work/ Guiding Principle 4 – Balanced Priorities

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
are allocated.	
16 <u>Analyze Hazards.</u> Hazards associated with the work are identified, analyzed, and categorized.	Section 5.5, Core Function 2 – Analyze Hazards
17 <u>Develop and Implement Hazard Controls.</u> Applicable standards and requirements are identified and agreed-upon, controls to prevent and mitigate hazards are identified, the safety envelope is established, and controls are implemented.	Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed
18 <u>Perform Work within Controls.</u> Readiness is confirmed and work is performed safely.	Section 5.7, Core Function 4 – Perform Work Within Controls/ Guiding Principle 7 – Operations Authorization
19 <u>Provide Feedback and Continuous Improvement.</u> Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur.	Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
<i>Component 4: Integrated Safety Management Mechanisms.</i> Safety mechanisms define how the core safety management functions are performed. The mechanisms may vary from facility to facility and from activity to activity based on the hazards and the work being performed and may include:	Section 4.0, CHG Company Level Programs Appendix B, Crosswalk Between ISMS Description Identified Processes, Governing Procedures, and the Applicable Guiding Principles and/or Core Functions
20 Departmental expectations expressed through directives (policy, rules, orders, notices, standards, and guidance) and contract clauses.	Section 1.0, Introduction Section 2.0, ISMS Overview
21 Directives on identifying and analyzing hazards and performing safety analyses.	Section 5.5, Core Function 2 – Analyze Hazards Section 5.6, Core Function 3 – Develop and Implement Hazard Controls, Guiding Principle 5 – Identification of Standards and Requirements, Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed
22 Directives which establish processes to be used in setting safety standards.	Section 2.0, ISMS Overview Section 4.1, Requirements Management Section 5.6.1, Identify Standards and Requirements
23 Contractor policies, procedures and documents (e.g., Health and Safety Plans, Safety Analysis Reports, Chemical Hygiene Plans, Process Hazard Analyses) established to implement safety management and fulfill commitments made to the Department.	Section 1.0, Introduction Section 2.0, ISMS Overview Section 4.0, TFC Company Level Programs Section 5.6.1, Identify Standards and Requirements

Department of Energy Acquisition Regulations and Policy Governing Integrated Safety Management	Tank Farm Contractor Integrated Safety Management (ISMS) System Description
<i>Component 5: Responsibilities for Integrated Safety Management.</i> Responsibilities must be clearly defined in documents appropriate to the activity. DOE responsibilities are defined in Department directives. Contractor responsibilities are detailed in contracts, regulations and contractor-specific procedures. For each management mechanism employed to satisfy a safety management principle or function, the associated approval authority needs to be established. The review and approval levels may vary commensurate with the type of work and the hazards involved.	Section 1.0, Introduction Section 4.0, TFC Company Level Programs Section 5.1, Line Management Responsibility for Safety Section 5.2, Clear Roles and Responsibilities
<i>Component 6: Implementation of Integrated Safety Management.</i> Implementation involves specific instances of work definition and planning, hazards identifications and analysis, definition and implementation of hazard controls, performance of work, developing and implementing operation procedures, and monitoring and assessing performance for improvement.	Section 5.0, ISMS Guiding Principles and Core Functions Section 6.0, Institutionalizing ISMS
Department of Energy Line Environment, Safety and Health Oversight (DOE P 450.5)	
A robust, rigorous, and credible contractor environment, safety and health self-assessment program linked to the DOE Safety Management System is in place, which includes elements that address:	Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
24 Performance measures and performance indicators.	Section 5.8.1, Collect Feedback Information
25 Line and independent evaluations.	Section 4.21, Independent Oversight and Trending Section 4.22, Self Assessments Section 5.8.2, Identify and Implement Improvement Opportunities
26 Compliance with applicable requirements (rules, regulatory standards, contract terms)	Section 5.6.1, Identify Standards and Requirements Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
27 Data collection, analysis, and corrective actions.	Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
28 Continuous feedback and performance improvement	Section 5.8, Core Function 5 – Provide Feedback and Continuous Improvement
Department of Energy Secretarial Policy Statement, Environment, Safety and Health (DOE P 450.6)	
.... Implementing the principles of Integrated Safety Management. All managers and workers must accept as their responsibility a concerted and sustained effort to achieve Integrated Safety Management at the Department of Energy.	Section 2.2, ISMS Guiding Principles Section 5.2, Clear Roles and Responsibilities Section 5.3, Competence Commensurate with Responsibilities
The fundamental premise of Integrated Safety Management is that all accidents are preventable through close attention to work design and hazard control, and with substantial worker involvement in teams that plan work and select appropriate safety standards.	Section 5.5, Core Function 2 – Analyze Hazards Section 5.6, Core Function 3 – Develop and Implement Hazard Controls/ Guiding Principle 5 – Identification of Safety Standards and Requirements/ Guiding Principle 6 – Hazard Controls Tailored to Work Being Performed Section 5.7, Core Function 4 – Perform Work Within Controls/ Guiding Principle 7 – Operations Authorization

Appendix D

Tank Farms ISMS Institutionalization

1.0 Background

In August 1999, Lockheed Martin Hanford Corporation (LMHC), as a Major Subcontractor to Fluor Daniel Hanford (Prime Contractor to DOE-RL), successfully completed verification of ISMS implementation within the Tank Farms (Nuclear Facility Hazard Category II). In October 1999, LMHC transitioned from Major Subcontractor to Fluor Daniel Hanford to Prime Contractor to DOE-ORP (separate DOE Field Office from DOE-RL, which was established in December 1998). In December 1999, the LMHC contract was sold to CH2M HILL.

CH2M HILL Hanford Group, Inc. (CHG), as the Tank Farm Contractor (TFC), is using the same procedures and processes used to obtain ISMS verification. CHG is confident that the integrity of ISMS implementation remains undisturbed as evident by the safe acceleration of major tank farm projects and activities.

2.0 Purpose

The purpose of Appendix D is to capture the key activities required to support ORP issuance of a Declaration of ISMS Institutionalization letter to DOE-Headquarters. Appendix D also captures the ongoing activities in support of sustaining, maintaining, and continuously improving the implemented TFC ISMS.

3.0 Activities Required for Declaring Successful ISMS

- 3.1. Revise the TFC ISMS Description for ORP approval (Contract Clause I.90). Status – Revision 1 to RPP-MP-003 has been prepared and ORP approval is targeted for May 2000.
- 3.2. Identify ISMS performance indicators to measure system effectiveness (Contract Clause I-90). Status – ISMS performance indicators are identified within RPP-MP-003, Revision 1; see item 3.1 above.
- 3.3. Develop the TFC ES&H minimum performance requirements for DOE-ORP approval (Contract Clause I-120). Status – The DOE-ORP and CHG Contracting Officers are addressing this item.
- 3.4. Support DOE-ORP Safety Management Assessment of TFC ISMS Description Implementation (DOE G 450 4-1 A, Chapter IV). Status – Field assessment is scheduled for May 2000, and feedback report to be issued in June 2000.
- 3.5. Revise the TFC ISMS Authorization Agreement (DOE/ORP M411.1-1 and Contract DE-AC06-99RL14047). Status - An Authorization Agreement (CHG-5890) has been prepared and approval is targeted for May 2000.
- 3.6. Complete Phase II Verification Corrective Action Plan (Continuous Improvement). Status – Phase II Verification identified 19 Opportunities for Improvement. As of April 2000, 16 actions are closed and three actions are to be completed by May 2000). Through DOE feedback and self identification, several of the actions have been expanded and will be provided to DOE upon Corrective Action Plan closure by June 2000. Independent review will be performed on each item.

4.0 Ongoing Activities in Support of Integration and Continuous Improvement

- 4.1. Continue with Major Subcontractor to Prime Contractor Procedure Transition (RPP-MD-033, *Transition of FDH Procedures, Plans, Policies, and Management Directives to RPP*). Management Directive RPP-MD-033 was issued at the time of transition to address the selective adoption of FDH procedures, plans,

policies, and management directives. Management Directive RPP-MD-033 provides the process and guidance for document use until said documents are revised and mapped into the existing HNF-IP-0842 structure that fully implements the TFC requirements.

- 4.2. Continue implementation and/or maintenance of the TFC commitments, terms, and conditions identified in the Authorization Agreement, Section 4, *Terms and Conditions* (CHG-5980).
 - Unreviewed Safety Questions (maintain)
 - Final Safety analysis Report (complete approved implementation plan)
 - Standards/Requirements Identification Document (complete Phase II and requirements migration from FH)
 - Integrated Environment, Safety, and Health Management System (complete integration and continuous improvements)
 - Quality Assurance Program Description (complete development)
 - Radiation Protection Program (implement)
 - Environmental Operations Specification Document (develop and complete implementation)
 - Fire Protection Program (maintain)
 - Natural Phenomena Hazards Mitigation Program (develop and implement)
 - Consolidated Tank Structural Integrity Program (develop and implement)
 - Nuclear Criticality Safety Program (complete transition)
- 4.3. Assess existing assessment programs for integration of ISMS guiding principles and core functions.
- 4.4. Assess ISMS flowdown to subcontractors for integration of guiding principles and core functions system.
- 4.5. Establish a CHG policy/plan and, if needed, a procedure that defines the Formal Feedback Mechanisms by which CHG will measure the effectiveness of ISMS and define responsibilities.
- 4.6. Continue with personnel communications to build upon Tank Farms safety culture.
- 4.7. Continue to develop employee involvement initiatives.
 - Annual VPP Self-Evaluation
 - CY 2000 VPP Safety Awareness Campaign
- 4.8. Continue improvement to work planning tools
 - Automated Job Hazard Analysis (AJHA) feedback to be analyzed for improvement of software/process.
 - The Standardized work instructions for Maintenance and Operations (SIMON) software implementation